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DRASTIC FOOD RESTRICTION

Effect on Cardiovascular Dynamics in Normotensive and Hypertensive Conditions

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Since the first description of essential hypertension by von Basch [1] in 1874 there has been a constant stream of regimens for the cure or amelioration of the disease. None has proved specific, but one of the most frequently recurrent has been dietary limitation in one form or another. The most recent upsurge of interest in the dietary treatment of hypertension appears to have been stimulated by Kempner's reports [2] indicating that beneficial results may be obtained with a diet containing about 2,000 calories, 15 to 20 Gm. of protein and 0.25 to 0.4 Gm. of sodium. The precise effective feature of the diet remains in some doubt, but Grollman and his co-workers [3] and Bryant and Blecha [4] expressed the belief that it is sodium chloride restriction, first suggested for the treatment of hypertension by Ambard and Beaujard [5] in 1905 and vigorously supported in this country by Allen and Sherrill [6] since 1920. The role of caloric restriction in the Kempner regimen is difficult to evaluate, although there is considerable evidence from other sources [7] that simple limitation of calories, without particular attention to the sodium intake, often results in lowering of the blood pressure both in persons with hypertensive disease and in normal persons.

It is perhaps not entirely fortuitous that renewed enthusiasm for dietary limitation as a means of treating hypertension should follow so closely on the heels of a global war. With conditions of famine prevailing in so many parts of the world, many opportunities for studying the effects of starvation on hypertensive disease have arisen. Wherever it has been possible to make sufficient observations on populations living under conditions of starvation and drastic food restriction, much highly pertinent information has accrued. Supplementing such contributions is a mass of data obtained from a study of experimental drastic food restriction carried out as a wartime research project in this country. The combined sources offer little new with regard to the familiar and often salutary effect of loss of body weight in hypertension, nor do they establish whether it is the diminished intake of calories or of sodium that effects the reduction in blood pressure. In general, however, they provide considerable support for the treatment in certain cases of hypertension by vigorous dietary limitation. In addition, important new light is thrown on cardiovascular dynamics during and after drastic food restriction.

It appears to us that in vivo investigations of the type to be described bear much more directly on the therapeutic rationale of dietary limitation than does the in vitro study offered by Kempner.[2b, c] Further, much of this information is at present either unavailable or inaccessible to American readers. For these reasons we have undertaken to draw the salient features together in the following review.

CARDIOVASCULAR DYNAMICS DURING STARVATION AND DRASTIC FOOD RESTRICTION

Experimental Data; Minnesota Experiment.—The exact effect of loss of body weight on the circulatory status of normotensive persons has recently been demonstrated under well controlled conditions.[8] Thirty-four young men, previously normal in all respects, were subjected to rigid control observations for three months, after which their food intake was drastically restricted for an additional six months. The daily caloric intake for the period was slightly less than 1,600 calories; the daily intake of protein was 49 Gm., and, although the exact intake of sodium is not known, no attempt at sodium limitation was made. Under these conditions, the average body weight for the group (69.4 Kg. in the control period) fell 23.9 per cent in the six month period. Paralleling the decline in body weight were striking decreases in blood pressure, pulse

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1. von Basch, S.: Die Herzkrankheiten bei Arteriosclerose, Berlin, August Hirschfeld, 1901, pp. 93-140.

2. (*a*) Kempner, W.: Treatment of Kidney Disease and Hypertensive Vascular Disease with Rice Diet, North Carolina M. J. **5**: 125-133 and 273-274, 1944; (*b*) **6**: 61-87, 1945; (*c*) Some Effects of the Rice Diet Treatment of Kidney Disease and Hypertension, Bull. New York Acad. Med. **22**: 358-370, 1946.

3. Grollman, A.; Harrison, T.; Mason, M.; Baxter, J., and Reichsman, F.: Sodium Restriction in the Diet for Hypertension, J. A. M. A. **129**: 533-537 (Oct. 20) 1945.

4. Bryant, J., and Blecha, E.: Low Sodium Forced Fluid Management of Hypertensive Vascular Disease and Hypertensive Heart Disease, Proc. Soc. Exper. Biol. & Med. **65**: 227-229, 1947.

5. Ambard, L., and Beaujard, E.: La rétention chlorurée sèche, Semaine méd. **25**: 133-136, 1905.

6. Allen, F., and Sherrill, J.: The Treatment of Arterial Hypertension, J. Metab. Research **2**: 429-544, 1922.

7. (*a*) Terry, A., Jr.: Obesity and Hypertension, J. A. M. A. **81**: 1283-1284 (Oct. 13) 1923. (*b*) Lups, S., and Francke, C.: Het gedrag van den bloeddruk tijdens den hongersnood en de herstelperiode (September 1944 to September 1945), Nederl. tijdschr. v. geneesk. **90**: 764-769, 1947. (*c*) Adlersberg, D.; Coles, H., and Laval, J.: Effect of Weight Reduction on Course of Arterial Hypertension, J. Mt. Sinai Hosp. **12**: 984-992, 1945.

8. Keys, A.; Henschel, A., and Taylor, H.: The Size and Function of the Human Heart at Rest in Semistarvation and in Subsequent Rehabilitation, Am. J. Physiol. **150**: 153-168, 1947.

rate and basal metabolic rate. The mean systolic blood pressure for the entire group fell from 106.5 mm. to 94.7 mm. of mercury, a decrease of 11.1 per cent; the corresponding values for the mean diastolic pressure were 69.9 and 64.5 mm. of mercury, respectively, representing a decline of 7.73 per cent during the six months of limited food intake. The mean pulse rate for the group at the end of the period reached the astonishingly low value of 37, and the basal metabolic rate reached a final average of — 39.9 per cent on the Mayo scale. An equally striking decrease in the size of the heart, progressing as semistarvation proceeded, was observed.

These and other observations point unmistakably to a general depression of circulatory function in previously normal young men with vigorous limitation of food intake. This depression is not to be confused with circulatory failure. Although edema appeared during the six month period in almost all the subjects, there was no evidence at this time of dyspnea, increased venous pressure or cardiac dilatation.

TABLE 1.—*Data Obtained in the Minnesota Experiment* *

Item	Period						
	C	S24	R6	R12	R14	R16	R20
Systolic blood pressure (mm./Hg.)	105.3	92.7	97.2	101.5	106.8	104.9	104.0
Diastolic blood pressure (mm./Hg.)	70.1	61.3	66.5	69.2	72.5	70.0	68.8
Venous pressure (cm./saline solution)	(10)	4.8	5.5	6.7	—	11.4	11.0
Resting pulse rate (beats/min.)	56.1	37.8	42.7	52.3	70.9	64.1	57.3
Daily food intake (calories)	3,602	1,647	2,456	3,527	5,801	5,271	3,960
Body weight (Kg.)	67.7	51.7	53.0	58.2	64.5	68.5	70.8
Basal oxygen consumption (cc./min.)	288	145	158	186	253	253	239

* Mean values of arterial and venous blood pressure, resting pulse rate, daily food intake, body weight and basal oxygen consumption for 12 men studied in the Minnesota semistarvation-rehabilitation experiment during the control period (C), after twenty-four weeks of drastic food restriction (S24) and six (R6), twelve, fourteen, sixteen and twenty weeks of nutritional rehabilitation.

Observations on European Populations During World War II.—Roughly corresponding to the three phases of the Minnesota Experiment (control, semistarvation and rehabilitation) are observations made in Leningrad before the outbreak of war, during the period of severe dietary limitation (September 1941 to March 1942) and during the recovery phase following the partial lifting of the siege in the spring and summer of 1942.[9] This study is of particular interest in that, unlike the Minnesota experiment, it encompassed both sexes and all adult age groups.

A decrease in the blood pressure was one of the characteristic symptoms of semistarvation in Leningrad, as were emaciation, muscular weakness, subnormal temperature, sensitivity to cold, general fatigue and apathy, polyuria and bradycardia.

It appears that during the period of reduced food intake not only was there a reduction in the number of patients hospitalized for hypertension but there were also significant changes in the clinical picture of hypertension and its manifestations. In a large number of patients who exhibited long-standing chronic hypertension, the blood pressure was reduced to a normal or near normal level. Furthermore, symptoms commonly associated with hypertension, such as headaches, dizziness and dyspnea on exertion, decreased in intensity or completely disappeared. In addition to the lowering of blood pressure and amelioration of the manifestations of hypertensive disease in general, there was a definite decrease in the severity and frequency of other cardiovascular disorders, such as angina pectoris and myocardial infarction.

From various other parts of Europe have come reports of somewhat similar observations. In Holland, striking decreases in blood pressure and pulse rate were observed by Langen and Schweitzer,[10] and by Lups and Francke [7b] in the general population during the winter of 1944-1945, when dietary restriction was at its height. Leyton [11] reported a definite tendency toward hypotension among prisoners of war in a camp in Germany where conditions of semistarvation prevailed. Similarly, Zimmer and his co-workers [12] observed hypotension to be common among undernourished persons held in concentration camps in the unoccupied zone of France. Burger and his co-workers [13] and Mollison [14] supplied further evidence of the same type from Holland and Germany, respectively. Specific mention of the effects of starvation on the blood pressure in hypertensive persons is made by Lups and Francke.[7b] They observed a more or less pronounced decline in systolic and diastolic blood pressures in about 74 per cent of normal persons and 93 per cent of persons with hypertensive conditions who lost weight during the period of drastic food restriction in Holland (September 1944 to April 1945).

CARDIOVASCULAR DYNAMICS DURING RECOVERY FROM SEMISTARVATION

Experimental Data; Minnesota Experiment.—In the Minnesota project, as in the Leningrad experience, changes in cardiovascular dynamics during recovery from semistarvation were recorded in some detail. For the entire group of 32 subjects, after twelve weeks of controlled rehabilitation the average weight increased from 52.8 Kg. to 58.8 Kg. The caloric and protein intake for this period were 2,449 calories and 72.85 Gm., respectively. Slight but definite rises in systolic and diastolic blood pressures occurred during the period, but the average readings were still well below the control values.

Of particular interest are the data for a smaller group of 12 men, who were observed for an additional eight weeks during which the dietary intake was large but was not rigidly controlled. The data are summarized in table 1. A large increase in caloric intake following the twelfth week of rehabilitation was associated with a rise of both the systolic and diastolic arterial blood pressure to values slightly above the control values. There was also a rise in the average venous blood pressure, which in 4 men reached the

9. Studies of the Leningrad Physicians During the War Years: Hypertensive Disease, Leningrad, Medgiz, 1945. Problems of the Pathology of the Blood and Its Circulation: Hypertensive Disease in Leningrad in the Years 1943 to 1944, ibid., 1946, vol. 3.

10. Langen, C., and Schweitzer, P.: Interne geneeskunde gedurende de eerste oarlogsjaren, in Medische Ervaringen in Nederlands tijdens de Bezetting 1940-1945, Groningen, J. B. Wolters, 1947, pp. 259-276.

11. Leyton, G. B.: Effects of Slow Starvation, Lancet **2**: 73-79, 1946.

12. Zimmer, R.; Weill, J., and Dubois, M.: The Nutritional Situation in the Camps of the Unoccupied Zone of France in 1941 and 1942 and Its Consequences, New England J. Med. **230**: 303-314, 1944.

13. Burger, G.; Sandstead, H., and Drummond, J.: Starvation in Western Holland, Lancet **2**: 282-283, 1945.

14. Mollison, P.: Observations on Cases of Starvation at Belsen, Brit. M. J. **1**: 4-8, 1946.

level of 15 cm. of saline solution or more. Moderate tachycardia and dyspnea on exertion became common during the period of rapid gain in weight. All these data indicate that the decidedly increased food intake, resulting in an increase of body weight and associated with a decided rise in the basal metabolism, placed a considerable strain on the cardiovascular system.

The experience with 1 particular man further suggests that the subjects were, in fact, on the verge of congestive cardiac failure. This man was released from the experiment after twelve weeks of rehabilitation and immediately began to eat at the general level of 7,000 to 10,000 calories of food a day. The daily intake of thiamine and other members of the vitamin B complex was above adult requirements as currently estimated during the entire period of rehabilitation. Two weeks after his release from controlled rehabilitation the subject noted a sudden return of edema and complained of dyspnea on exertion. At this time it was observed that he had gained 9 pounds (about 4.1 Kg.) in the preceding two days. Laboratory examinations showed a plasma protein level of 6.3 Gm. per hundred cubic centimeters and a ratio of albumin to globulin of 1.75. The venous pressure was 20 cm. of water. The size of the heart was seen to have increased sharply in the two weeks following cessation of controlled rehabilitation. The subject was placed in bed and given restricted fluids, ammonium chloride and a diet of 3,000 calories a day. A few days later diuresis began, and he quickly lost 10 pounds (about 4.5 Kg.) of body weight, after which recovery was rapid.

Interesting data were obtained on a group of 19 men examined after thirty-three weeks of dietary rehabilitation. At this time the average body weight increased to 75.8 Kg., or 109.2 per cent of the prestarvation value. At the same time, the average systolic and diastolic values were 107.7 and 70.4 mm. of mercury, as compared with 104.1 and 68.6 during the control period. These average values do not reflect the trend of changes as clearly as the frequency with which the blood pressure changed in the 19 persons comprising the follow-up sample. The systolic blood pressure increased in 14 subjects, decreased in 4 and remained the same in 1. The respective frequencies for the diastolic blood pressure were 13, 5 and 1. In no case did the rise represent a pathologic shift in the level of the blood pressure—the maximum rise was 12 mm. of mercury—but the relative frequency of the increases is suggestive.

In a group of 7 men, examined fifty-eight weeks after the end of the vigorous dietary limitation, the weight returned close to the prestarvation level (69.3 Kg., or 101.4 per cent of the control value). At the same time, the average blood pressure also returned to prestarvation levels. The actual means for the systolic blood pressure during the control period and at the fifty-eighth week of rehabilitation were 107.9 and 107.2; for the diastolic pressure the respective values were 70.7 and 69.1 mm. of mercury.

Observations on European Populations in World War II.—It is evident, from the Minnesota work, that the decline in blood pressure that occurs during semistarvation in normal young men is a reversible pocess and that when recovery is fully established the blood pressure returns to normal values. From areas directly affected by the war comes evidence that not only does the blood pressure return to normal values during recovery but it may also overshoot the mark to frankly hypertensive levels. Episodes of hypertension were observed in malnourished British prisoners of war during the period of recovery from semistarvation.[15] Schwartz,[16] working with Spanish internees in France, reported the sudden development of moderate hypertension concomitant with the institution of treatment for semistarvation.

By far the most extensive study of cardiovascular dynamics in a population recovering from semistarvation was that done in Leningrad.[9] A brief summary of the observations during the second, or starvation, phase of this work has already been given.[17] The observations during the third, or recovery, phase were detailed, and the results appear to us to be important enough to warrant reporting at some length.

In the two years following the famine in Leningrad, hypertension suddenly became a major medical problem.

In April 1943, measurements of blood pressure were carried out on a large sample of the city population and on small samples from particular occupational groups.

TABLE 2.—*Incidence of Elevated Blood Pressure* in "Healthy" Persons in Leningrad, 1940 and 1942-1943*

Age Group (Yr.)	Prewar (Percentage)	1942-1943 (Percentage)
20-29	3	12
30-39	7	30
40-49	25	50
50-59	22	66
60 plus	23	70

* Above 140 mm. of mercury systolic and 90 mm. of mercury diastolic.

Specifically, some 10,000 "normal" persons were examined, and the results were compared with those of Hellman, who conducted a similar survey in the prewar year 1940. Taking 140 mm. of mercury as the upper limit of normal for the systolic and 90 mm. of mercury as that for diastolic blood pressure, a pronounced increase in the incidence of hypertension in all age groups was observed (table 2). Thus, it appears that the pool of persons in whom symptoms and clinical signs of hypertension are likely to develop was enormously increased during recovery from semistarvation. In the group aged 20 to 29 and in that aged 30 to 39 there was approximately a fourfold increase in the period 1942-1943 as compared with the prewar incidence. In the group aged 40 to 49 the increase was about twofold, and in the group aged 50 or more it was threefold.

That a portion of the increase in the incidence of hypertension might have been due to changes in the population of the city as a result of the war was taken into consideration by the Russian workers. The wartime population was an older one and contained more

15. Stapleton, T.: Oedema in Recovered Prisoners-of-War, Lancet **1**: 850-851, 1946.

16. Schwartz, O.: Beobachtungen und Erfahrungen bei der Hungerkrankheit im Lager von Gurs (Südfrankreich), Schweiz. med. Wchnschr. **75**: 1136-1137, 1945.

17. Brozek, J.; Wells, S., and Keys, A.: Medical Aspects of Semistarvation in Leningrad (Siege 1941-1942), Am. Rev. Soviet Med. **4**: 70-86, 1946.

women than the prewar population, both of which changes are factors tending to increase the incidence of hypertension. It was the opinion of the Russian authors, however, that the entire increase in incidence of the disease would by no means be accounted for by changes in the age and sex distribution of the wartime population of the city. Detailed breakdowns by age and sex of the wartime sample are not given, but a rough grouping by age is provided, as shown in table 2. Unless the number of persons in the younger age group were extremely small it seems that the age factor could not, *per se*, account for the differences between the prewar sample and that examined in 1942-1943. As for the sex factor, we are told that 80 per cent of the 1942-1943 sample were women. That women are more subject to hypertension than are men is freely admitted, but differences in the incidence of the disease due to the sex factor alone, as judged by surveys in the United States,[18] are considerably smaller than those observed in the Leningrad surveys.

The studies on specific occupational groups involved rather small samples, but suggested that workers in the food industry, whose jobs during the siege gave them access to adequate or nearly adequate diets, subsequently suffered much less from hypertension than did those whose occupations were not concerned with food.

The general increase in incidence of hypertension resulted, as might have been expected, in a striking increase in the number of patients admitted to hospitals for hypertensive disease. The number of patients with hypertensive disease admitted in peacetime to the Therapeutic Clinic of the Pavlov First Medical Institute in Leningrad represented about 10 per cent of all admissions. This proportion increased slightly during the first months after the outbreak of hostilities (July to September 1941), dropped significantly during the period of severe dietary limitation (October 1941 to March 1942) and increased progressively from that time throughout 1943. In January of the latter year, patients suffering from some form of hypertension constituted 20 per cent of the total admitted; by June 1943, the figure had risen to 60 per cent (table 3).

TABLE 3.—*Relative Number of Patients Admitted for Hypertensive Disease to the Clinic of the First Medical Institute in Leningrad*

Period	Total Admissions (Percentage)
1940	10.0
July to September 1941	15.0
October 1941 to March 1942	2.0
April to December 1942	24.5
1943	50.0
January to April 1944	35.0

The general level of admissions for hypertension in 1943 was five times as high as that during the prewar year of 1940. It is probable that the criteria for admission to the hospitals changed radically during the siege, so that patients suffering from chronic, or even acute, nontraumatic ailments were cared for at home instead of being admitted to hospitals. It is not surprising, therefore, to see a pronounced decrease in the number of patients admitted for hypertension during the period of drastic food restriction. Furthermore, with the lifting of the siege, one might expect an influx of chronically ill patients who had previously been denied hospitalization. Such an influx could account for the increase in the number of patients with hypertensive disease admitted shortly after March 1942, at which time 20 per cent of the total admissions were for hypertension as compared with 10 per cent in 1940. The influx of such a backlog of patients with hypertensive disease might logically be expected to have spent itself within a few months and, in any case, could hardly explain the phenomenal influx reported for June 1943 (60 per cent of all admissions).

TABLE 4.—*Age Distribution of Patients Admitted to a Hospital in Leningrad for Hypertensive Disease*

Age Group	1938-1939 Number	1938-1939 Percentage	1942-1943 Number	1942-1943 Percentage	Percentage Difference
30-39	18	9	54	18	+9
40-49	54	27	96	32	+5
50-59	80	40	111	37	−3
60 and over	48	24	39	13	−9

The Leningrad population changed little in 1942 and 1943, yet it was during the latter year that the large increase in admissions for hypertension took place. If the shift toward an older population were alone responsible for the increased incidence of hypertension, one would expect the shift to be reflected in the ages of hypertensive patients admitted to the hospital. Actually the proportion of patients in the older age groups who were admitted for hypertension declined somewhat during this period (table 4). In another sample of 212 patients with hypertensive disease (25 men and 187 women) there was a similar shift, with a larger incidence among the younger age groups. The frequencies for samples of patients in 1939 and 1942-1943 are given in table 5.

In short, it appears probable from the data presented that the increase in admissions to a hospital for hypertension or for some manifestation thereof was an independent phenomenon and was not due exclusively to changes in criteria for admission or to changes in the wartime population of the city.

The increase in admissions to a hospital for hypertension was paralleled by the incidence of hypertensive disease observed at autopsy. At the Erisman Hospital in Leningrad, in the period from 1941 to early 1942, only 1.2 to 5.2 per cent of all autopsies were carried out in cases in which there had been hypertensive disease. In September 1942, about six months after it became possible to increase food supplies, the percentage began to increase rapidly, and by early 1944 it had reached 54.5 per cent.

Not only was there evidence for an increased incidence of hypertension during recovery from semistarvation, but there were also indications, particularly among hospitalized patients, that the disease was seen in a severer form than previously. Thus there was a pronounced rise in the relative frequency and severity of such symptoms as headaches, vertigo and syncope. The blood pressure itself, particularly the diastolic component, was said to be generally higher in hospitalized patients with hypertensive disease than it was in the same group before the war. For the epidemic

18. Wetherby, M.: Blood Pressure in 5,540 Individuals, Ann. Int. Med. 6: 754-770, 1932.

period of hypertension (1942-1943), the diastolic blood pressure was 90 to 100 mm. of mercury in 20 per cent, 100 to 120 mm. of mercury in 60 per cent, 120 to 140 mm. of mercury in 10 per cent and above 140 mm. of mercury in 10 per cent. Unfortunately, the corresponding prewar blood pressure levels were not given. Ophthalmoscopic examinations disclosed that, while changes in the retinal vessels were only slightly commoner than before the war, changes in the retina itself, such as exudate and hemorrhage, were much commoner. Before the war the latter changes were seen in 23 to 25 per cent of patients hospitalized for hypertensive disease, while during the epidemic 70 per cent showed such changes. Frank neuroretinitis, including papilledema, was seen in 20 to 30 per cent of hospitalized patients with hypertensive disease, but could not be directly related to the height of the blood pressure. According to the Wagener and Keith classification,[19] these observations indicate that over one half of the patients admitted to the Russian clinic during the epidemic fell into group 3 and about one fourth into group 4 (malignant hypertension).

The incidence of cardiac insufficiency in persons with hypertension appears to have increased decidedly. The data for one hospital are given in table 6. In many patients, particularly those suffering from hypertension of relatively recent origin, the onset of cardiac insufficiency was acute. Many persons so affected had been apparently healthy up to the time the acute symptoms appeared, usually in the form of true cardiac asthma. The occurrence of angina pectoris either before or during the bouts of decompensation was rare. In many cases, the onset of cardiac insufficiency appeared to be related to severe physical exertion, particularly in persons ordinarily pursuing a sedentary calling. Further, there appeared to be no relation between the duration of hypertension and the development of cardiac insufficiency in a given case, the syndrome having developed in many shortly after the appearance of hypertension. In a sample of about 400 patients aged 20 to 80 years, there appeared to be a significant positive relationship between age and the incidence of cardiac insufficiency.

TABLE 5.—*Percentage Incidence of Clinical Hypertension According to Age in Two Samples of Hospitalized Patients in Leningrad*

Year	Below 20	21 to 30	31 to 40	41 to 50	51 to 60	61 to 70	71 to 80	Total Number
1939.....	0	2.7	10.4	29.6	40.9	13.7	2.7	154
1942-1943.....	0.9	4.7	16.5	36.3	25.0	15.2	1.4	212
Percentage difference..	+0.9	+2.0	+ 6.1	+ 6.7	—24.1	+ 1.5	—1.3	

At the same time, it should be noted that the average age in the group with hypertension of recent origin was 45 years, while in the group with long-standing hypertension it was 57 years.

Roentgenographic studies were carried out in 1943 on 250 patients with hypertension of recent origin. The size and configuration of the heart were normal in 25.4 per cent, left ventricular enlargement was seen in 57.6 per cent and generalized enlargement of the heart in 14 per cent. Electrocardiographic studies of the same 250 patients disclosed no abnormality in 12.2 per cent and changes ordinarily attributable to hypertension in 33.3 per cent. Left axis deviation was present in 14.6 per cent and right axis deviation in 9.8 per cent.

The venous pressure was measured in 121 patients with hypertensive disease in 1943 during recovery from semistarvation. Thirty-seven per cent showed distinctly elevated values. Unfortunately, correlations between venous pressure, on the one hand, and symptoms, physical observations and heart size, as determined by roentgenogram, on the other, were not given.

TABLE 6.—*Admissions for Hypertensive Disease, With and Without Cardiac Insufficiency, to the Therapeutic Clinic of the First Medical Institute in Leningrad*

	July-Dec. 1941	Jan.-June 1942	July-Dec. 1942	Jan.-June 1943	July-Dec. 1943
Total number of admissions.....	20	4	37	155	168
With cardiac insufficiency.....	10	3	27	114	124
Without cardiac insufficiency.....	10	1	10	41	44

At autopsy cardiac hypertrophy was seen to be slight to moderate in the majority of cases in which death was due to hypertensive cardiac disease, and extreme hypertrophy was decidedly uncommon. In patients who died of semistarvation uncomplicated by hypertension the average weight of the heart at autopsy was 168 Gm., as compared with the normal average of about 300 Gm. When hypertension was superimposed on semistarvation at Leningrad, the expected cardiac atrophy appears to have been modified by a tendency to relative cardiac hypertrophy. In patients with hypertensive disease who still showed pronounced effects of semistarvation, the average weight of the heart at autopsy was 370 Gm., with a minimum weight of 200 Gm. In a group of patients with hypertensive disease in whom the residue of semistarvation was less severe, the average weight of the heart at autopsy was 420 Gm., while in patients who died of hypertension uncomplicated by semistarvation it was 477 Gm. In late 1942 and early 1943, autopsies disclosed that of persons who died as a result of hypertensive disease, 78 per cent showed cardiac insufficiency and 14 per cent showed cerebral hemorrhage. Significant renal changes were seen in less than 35 per cent of the cases, while before the war nephrosclerosis of significant degree was observed in about 50 per cent of cases. Frank malignant nephrosclerosis (arteriolar necrosis) disappeared completely and did not begin to reappear until the second quarter of 1943. Roughly comparable American figures[20] show that about 50 per cent of patients suffering from hypertension ultimately die of congestive cardiac failure, 15 per cent die of coronary sclerosis, 15 per cent of cerebrovascular accidents and 8 per cent of uremia. Evaluation of the Russian data is hampered by the inadequacy of prewar figures for comparison and by the failure of the authors to present a complete description of the autopsy material. The autopsy data are nevertheless interesting when considered along with the clinical material. The suggestion that in the epidemic of hypertension following semi-

19. Wagener, H., and Keith, N.: Diffuse Arteriolar Disease with Hypertension and the Associated Retinal Lesions. Medicine **18**: 317-430, 1939.

20. Herndon, H.: An Introduction to Essential Hypertension, Springfield, Ill., Charles C Thomas, Publisher, 1946.

starvation in Leningrad, cardiac insufficiency increased decidedly while renal damage decreased is of the greatest interest, as is the reported virtual disappearance of malignant nephrosclerosis. It is regrettable that more information is not presented on these topics.

COMMENT

That drastic dietary restriction causes a fall in blood pressure in most normal persons and persons with hypertensive disease seems to us to be proved. In this connection the Minnesota experiment supplies unequivocal data as regards normal young men. The European observations, and particularly those made in Leningrad, supply almost equally impressive evidence as regards normal persons and persons with hypertensive disease of all ages and both sexes. Neither group of observations can be regarded as settling the controversy over the relative importance of caloric and sodium restriction in the lowering of the blood pressure. If anything, they suggest that caloric restriction may be fully as effective as sodium restriction in producing this result, since in neither the Minnesota experiment nor the Leningrad experience was the sodium intake specifically limited. In fact, the men subjected to experimental limitation of food intake increased their consumption of salt.[21] Those Europeans who were forced to endure drastic food restriction during the war probably received less sodium in the form of common salt than they did under prewar conditions; it is unlikely, however, that their sodium intake even approached the low level required by the Kempner regimen.

The increase in incidence and severity of hypertension during recovery from semistarvation that figures so prominently in the report from Leningrad seems too impressive to be ignored. The absence of frank hypertension during the recovery phase of the Minnesota experience may well have been due to the fact that the subjects employed were normal young men; in Leningrad, on the other hand, the observations embraced a population containing both sexes and many elderly persons. It appears not unreasonable that the hypertensive effects of refeeding may be more pronounced in a population containing both sexes and all age groups than in one composed entirely of normal young men. However this may be, both sources supply information indicating that the cardiovascular dynamic state during recovery from semistarvation may be extremely precarious, even in the absence of hypertension. As the Leningrad physicians pointed out, if hypertension be superimposed on this treacherous state, severe cardiac failure may result.

From a practical point of view there is much to be learned from the results of the Minnesota and Leningrad investigations. Both appear to lend support to the treatment of hypertension by vigorous dietary restriction. On the other hand, both suggest that the uncritical application of regimens like that introduced by Kempner may not be without some danger to the patient. It may be argued that the Kempner diet is not comparable to those prevailing during the phase of vigorous dietary limitation of the aforementioned investigations, since patients receiving the Kempner regimen are allegedly in caloric and nitrogen balance. The matter cannot be regarded as settled, however, and Fishberg's assumption [22] that the inevitable unpalatability of salt-poor diets results in caloric restriction probably has some basis in fact. It is possible that both sodium and caloric restriction, working together or individually, may cause lowering of the blood pressure and that both factors were at work during the phase of drastic food restriction of the Minnesota and Leningrad investigations. In any case, few workers familiar with the Kempner and similar diets will deny that patients frequently cannot or will not adhere to such restrictions. Out of the Minnesota and Leningrad experiences grows the possibility that such a patient may be worse off, when he modifies or abandons his dietary restrictions, than he was before the treatment was instituted. This possibility appears to us to make careful selection of patients to be treated by the Kempner regimen mandatory. Patients so selected should be warned beforehand that once instituted, the regimen must be followed carefully and that modifications, particularly if sudden, may be dangerous. There can be no objection to the regimen in severe and especially in malignant hypertension. For less severe disease, particularly in obese persons, it seems unwise to employ such severe dietary restrictions. The salutary effect of weight loss alone in such cases has been repeatedly demonstrated, and a reduction diet rather than a diet of the Kempner type is to be preferred.

SUMMARY

Recent experimental and epidemiologic observations indicating that drastic food restriction usually causes lowering of the blood pressure in normal persons and in persons with hypertensive disease are reviewed. The same reports also indicate that during recovery from semistarvation the cardiovascular dynamic balance is so disturbed that cardiac failure may occur. The blood pressure in previously normal persons returns to normal levels during recovery from semistarvation and in some instances, according to European reports, may go well above the upper limits of normal. Particularly striking are descriptions of an epidemic of hypertension and hypertensive cardiovascular disease which occurred after the lifting of the siege of Leningrad in 1943.

The bearing that these observations may have on the currently popular method of treatment for hypertension by severe dietary limitation is discussed.

21. Franklin, J. C.; Schiele, B.; Brozek, J., and Keys, A.: Observations on Human Behavior in Experimental Semistarvation and Rehabilitation, J. Clin. Psychol., to be published.

22. Fishberg, A.: Hypertension and Nephritis, ed. 4, Philadelphia, Lea & Febiger, 1939, p. 702.

Jenner and Hunter.—During this part of his career when he was actively engaged in his practice, he found time to conduct many biological experiments, some of which were suggested by Hunter. In fact, Hunter rarely wrote without some reference to this work. Jenner had occasion to send Hunter patients from time to time for his opinion and the report on these is accompanied by requests for biological material or suggestions of experiments which might help to solve some biological problem. He studied the subjects of the torpidity of hibernating animals and migration of birds; he introduced an improved method of purifying tartar emetic and conducted experiments on the effect of animal manure on vegetation. He showed "it was first the robin, not the lark, as has been generally imagined, as soon as twilight has drawn the imperceptible line between night and day, who begins his lonely song."—Milling, T., M.D., *The Bristol Medico-Chirurgical Journal*, Vol. 65, No. 233 (1948).

ACUTE CIRCULATORY ARREST

From Ventricular Fibrillation for Twenty-Seven Minutes, With Complete Recovery

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and
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The catastrophe of sudden circulatory arrest in the operating room is an emergency which will confront almost every surgeon at least once during his career. It has been stated [1] that a busy surgical clinic may expect approximately 2 cases a year. Experience,[2] experimentally with animals and clinically with patients, has shown that sudden circulatory arrest may be due either to cardiac standstill [3] or to ventricular fibrillation.[4] The series of events which precipitate abrupt circulatory arrest are complex and open to speculation. It should be emphasized that in the reported cases this calamity occurred most often during light anesthesia in either the phase of induction or recovery, when the myocardium is known to be more irritable than normally.[5] Effective methods of treatment are now at hand, and prompt treatment may prevent an otherwise certain fatality. It is the purpose of this communication to take up briefly these measures and to report a case of proved ventricular fibrillation with complete recovery following direct cardiac massage and the intravenous administration of procaine hydrochloride.

The most essential single therapeutic measure in sudden circulatory arrest is the immediate restoration of the circulation. The administration of oxygen in high concentration by pulmonary resuscitative procedures is of paramount importance in order to maintain adequate oxygenation of the lungs and also to aid in the circulation of the blood.[6] It is apparent that in some cases of sudden cardiac arrest effective cardiac action has been promptly restored by the stimulation of cardiac palpation.[7] In ventricular fibrillation this is less likely to occur,[4] and the circulation must be maintained by prompt manual propulsion of the blood. Effective cardiac massage is necessary until defibrillation has been accomplished and forceful coordinated ventricular contractions are present. Ventricular defibrillation of the human heart in the presence of coronary disease has occurred spontaneously and has been recorded and reported.[8] At present there are two practical methods of interrupting ventricular fibrillation, namely, the use of electric shock, as recently reported by Beck,[9] and the administration of procaine hydrochloride into the blood stream. These two methods may be used separately or as adjuncts to each other.[10a] For some time it has been recognized [10b] that procaine hydrochloride reduces the excitability of the hyperirritable myocardium. It has been administered to control cardiac irregularities during thoracic operations,[11] and it is also used prophylactically to prevent their occurrence.[12] The injection of epinephrine in sudden cardiac arrest should be reserved for the treatment of cardiac standstill and should not be used as an agent for defibrillation, because it makes a hyperirritable myocardium even more irritable. It is for this reason that electrocardiographic diagnosis is important, as it may determine which of two diametrically opposed drugs to use.

REPORT OF A CASE

J. R., a 7 year old boy, entered the Hartford Hospital through the accident room at 3:45 p. m., July 17, 1947, because of a deep laceration of the bottom of the right foot, which was sustained by stepping on a jagged piece of glass. The laceration extended through the sole of the foot and cut most of the nerves, muscles and tendons beneath the central portion of the arch. The loss of blood must have been only moderate, because the child showed no evidence of increased pulse rate, pallor, sweating or any other sign of shock. After receiving preoperative medication of 1/12 grain (54 mg.) morphine sulfate, 1/200 grain (0.325 mg.) atropine sulfate and 3/4 grain (48.8 mg.) "seconal sodium" (sodium 5-allyl-5-[1-methylbutyl] barbiturate), he was taken to the operating room for suture of the laceration. The pertinent portions of the operative note, which follow, describe the dramatic events which took place when the heart suddenly went into ventricular fibrillation.

During anesthesia produced by open drop ether induced with cyclopropane (fig. 1), the severe laceration of the plantar surface of the right foot was carefully cleaned with soap and water and then irrigated with 1 liter of isotonic sodium chloride solution. The wound extended across the foot, directly beneath the instep and down to the bone and completely divided the tendinous and muscular structures. Repair of the various structures, including tendons, muscles and nerves, was undertaken. During the procedure, which lasted about one hour and fifteen minutes, a blood pressure cuff was used as a tourniquet and was released every twenty minutes for two minutes.

At the close of the operation, when administration of the anesthesia had been stopped and while preparations were being made to apply a plaster boot, the patient's pulse abruptly stopped. Auscultation over the heart revealed absolutely no heart sounds. The patient became pale and ashen. Spontaneous respirations ceased. It became startlingly evident that this child had suffered sudden circulatory arrest. As soon as this fact was comprehended with certainty, which was approximately two and a half minutes, three minutes at the outside, from

Read at the meeting of the New England Society of Anesthesiologists, Boston, March 9, 1948.

From the Department of Surgery and the Department of Anesthesia, Hartford Hospital, Hartford.

1. Ruzicka, E. R., and Nicholson, M. J.: Cardiac Arrest Under Anesthesia, J. A. M. A. **135**: 622-628 (Nov. 8) 1947. Bailey, H.: Cardiac Massage for Impending Death Under Anaesthesia, Brit. M. J. **2**: 84-85 (July 19) 1941.

2. Beck, C. S., and Mautz, F. R.: The Control of the Heart Beat by the Surgeon, Ann. Surg. **106**: 525-537 (Oct.) 1937.

3. Adams, H. D., and Hand, L. V.: Twenty Minute Cardiac Arrest with Complete Recovery, J. A. M. A. **118**: 133-135 (Jan. 10) 1942.

4. (*a*) Beck and Mautz.[2] (*b*) Fauteux, M.: Cardiac Resuscitation, J. Thoracic Surg. **16**: 623-639 (Dec.) 1947.

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6. Thompson, S. A.; Quimby, E. H., and Smith, B. C.: The Effect of Pulmonary Resuscitative Procedures upon the Circulation as Demonstrated by the Use of Radioactive Sodium, Surg., Gynec. & Obst. **83**: 387-391 (Sept.) 1946.

7. (*a*) Nicholson, J. C.: Cardiac Massage, Brit. M. J. **1**: 385-386 (March 21) 1942. (*b*) Vernon, H. K.: Recovery from Heart Failure After Cardiac Massage, Lancet **1**: 6 (Jan. 2) 1943. (*c*) Grimshaw, C.: Cardiac Massage: Recovery, Brit. M. J. **1**: 387 (March 21) 1942. (*d*) MacLeod, N., and Schnipelsky, L. A.: Cardiac Massage for Heart Failure Under Spinal Anesthesia, ibid. **1**: 610 (May 16) 1942. (*e*) Easton, A. M.: Cardiac Massage—Recovery, ibid. **1**: 651 (May 23) 1942.

8. Robinson, E. C., and Bredeck, J. F.: Ventricular Fibrillation in Man with Cardiac Recovery, Arch. Int. Med. **20**: 725-738 (Nov.) 1917. Zindahl, W. T., and Fulton, F. T.: Transient Ventricular Fibrilation—Report of a Case with Spontaneous Recovery, Am. Heart J. **32**: 117-123 (July) 1946. Levine, S. A.: Clinical Heart Disease, Philadelphia, W. B. Saunders Company, 1936, pp. 357-377.

9. Beck, C. S.; Pritchard, W. H., and Feil, H. S.: Ventricular Fibrillation, J. A. M. A. **135**: 985-986 (Dec. 13) 1947.

10. (*a*) Fauteux, M.: Personal communication to the author. (*b*) Mautz, F. R.: Reduction of Cardiac Irritability by the Epicardial and Systemic Administration of Drugs as a Protection in Cardiac Surgery, J. Thoracic Surg. **5**: 612-628 (Aug.) 1936.

11. Burstein, C.: Treatment of Acute Arrhythmias During Anesthesia by Intravenous Procaine, Anesthesiology **7**: 113-121 (March) 1946.

12. Tovell, R. M., and Barbour, C. M.: Experiences with Procaine Administered Intravenously, Anesthesiology, to be published.

the time the pulse had stopped, an incision was made in the left side of the chest in the fifth interspace, opening directly into the left pleural cavity (fig. 2). This was done with the ungloved hand, because the gloves had been removed preparatory to applying plaster. It took approximately ten seconds to open the chest. It was possible to insert the middle and

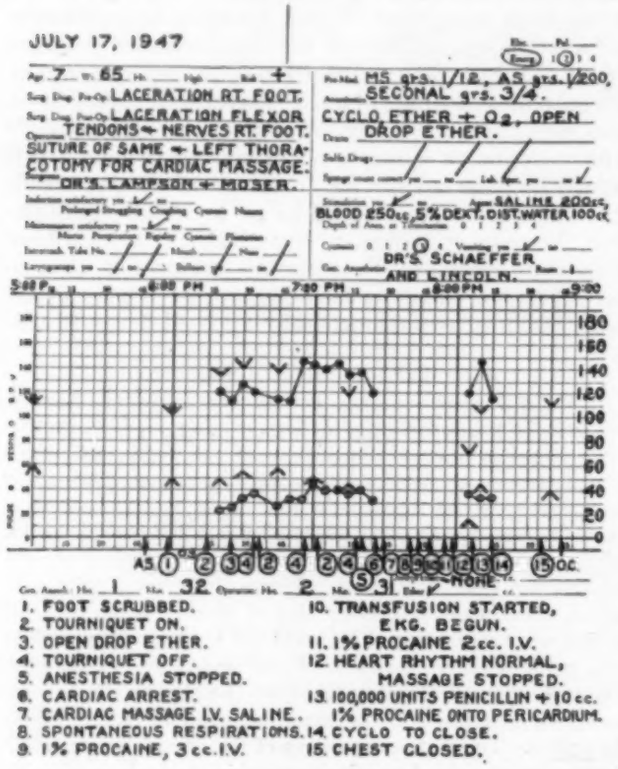
JULY 17, 1947
LACERATION RT. FOOT.
LACERATION FLEXOR TENDONS + NERVES RT. FOOT. SUTURE OF SAME + LEFT THORACOTOMY FOR CARDIAC MASSAGE. DR'S. LAMPSON + MOSER.
MS grs. 1/12, AS grs. 1/200, SECONAL grs. 3/4.
CYCLO, ETHER + O2, OPEN DROP ETHER.
SALINE 200cc, BLOOD 250cc, 5% DEXT. DIST. WATER 100cc
DR'S. SCHAEFFER AND LINCOLN.
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00
180
160
140
120
100
80
60
40
20
0
AS 1 2 3 4 2 4 2 4 6 7 8 9 10 11 12 13 14 15 OC.
NONE
1. FOOT SCRUBBED.
2. TOURNIQUET ON.
3. OPEN DROP ETHER.
4. TOURNIQUET OFF.
5. ANESTHESIA STOPPED.
6. CARDIAC ARREST.
7. CARDIAC MASSAGE I.V. SALINE.
8. SPONTANEOUS RESPIRATIONS.
9. 1% PROCAINE, 3 cc. I.V.
10. TRANSFUSION STARTED, EKG. BEGUN.
11. 1% PROCAINE 2cc. I.V.
12. HEART RHYTHM NORMAL, MASSAGE STOPPED.
13. 100,000 UNITS PENICILLIN + 10 cc. 1% PROCAINE ONTO PERICARDIUM.
14. CYCLO TO CLOSE.
15. CHEST CLOSED.

Fig. 1.—Anesthesia record.

index fingers of the left hand and palpate the heart, which felt soft and lifeless. Visual examination of the heart disclosed the fine ripples of ventricular fibrillation passing aimlessly across the left ventricle beneath the pericardium. Cardiac massage was immediately started by intermittently compressing the heart against the sternum with the middle and index fingers of the left hand. This was done at a rate of approximately sixty times per minute. An observer at the wrist of the child could feel an effective pulse each time the heart was compressed. The anesthetist maintained artificial respiration with the anesthesia machine and supplied pure oxygen to the lungs. The patient's color and general appearance improved promptly after cardiac massage was begun. Epinephrine was ordered, but, before it was given, the advisability of its use was discussed by those of us in the operating room, and it was decided that an irritable heart would be made more irritable with epinephrine. It was not given. About fifteen minutes elapsed, during which time the heart failed to assume a normal rhythm. It was decided to give intravenously 3 cc. of a solution of procaine hydrochloride in 1 per cent concentration. Administration of isotonic sodium chloride solution had been started in the left saphenous vein at the ankle. A transfusion of blood was started, to provide more red cells to carry oxygen and to replace any deficit which might have occurred following the laceration of the foot, although no evidence of shock or excessive loss of blood had at any time been noted.

An electrocardiographic machine was procured, and a tracing was made (fig. 3). The fluctuations of the galvanometer string were observed and gave the gross impression of ventricular fibrillation. Approximately twenty-six and a half minutes after the circulatory arrest had been noted, a second dose of 2 cc. of procaine hydrochloride was given. In approximately thirty seconds after this, the tone of the heart changed. It was felt to stiffen beneath the massaging fingers and to assume again, after twenty-seven minutes, spontaneous contractions. These contractions were at first irregular, and at one time it was thought that they were going to cease; however, they continued and became more forceful and regular. The character of the response of the galvanometer string, as observed visually, appeared to assume a normal configuration. Two minutes after spontaneous rhythm occurred, there was a rapid, strong regular pulse. Observation of the heart was continued for approximately one-half hour, with the thorax open. Penicillin, 100,000 units dissolved in 10 cc. of procaine hydrochloride, was flushed onto the pericardium. The wound in the chest was then closed with interrupted silk sutures. A plaster boot was applied to the foot. Spontaneous respirations were present and had begun approximately fifteen minutes after the onset of cardiac arrest, while the heart was still being massaged but before it had reverted to a normal rhythm. Spontaneous respiratory effort was amplified by intermittent compression of the breathing bag. During recovery, the patient vomited several times and the trachea had to be cleared by suction. When the patient left the operating room, approximately three and a half hours after the anesthesia had been started, he was semicomatose, restless, vomiting, coughing and breathing spontaneously. He was returned to the ward and placed in an oxygen tent under the supervision of a special nurse, with the hope that the ravages of anoxemia of the brain would not leave a permanent scar.

The electrocardiographic tracing (fig. 3) was studied by Dr. Robert S. Starr, who gave the following interpretation: An electrocardiographic record of this patient was started about twenty minutes after pulsation, heart sounds and respirations had ceased. The tracing was continued, with two interruptions of a few seconds each, while the leads were changed, until a normal heart mechanism was reestablished. Throughout the first two leads the ventricular complexes were absolutely arrhythmic and totally differed from one another in contour. No P waves were identified. This portion of the electrocardiogram was typical of ventricular fibrillation. These curves were at a rate of 365 complexes per minute. Fibrillation ceased

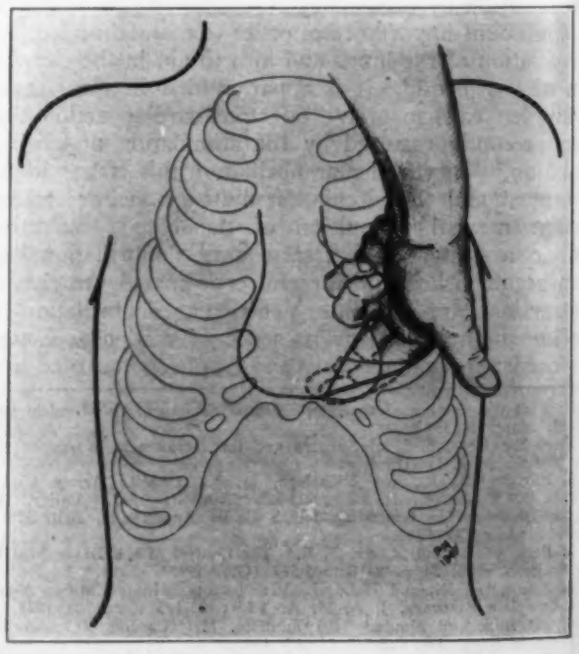

Fig. 2.—Diagram of approach for cardiac massage.

during the few seconds occupied by shifting from lead 2 to 3. When the record was resumed, no evidence of cardiac activity was present for a period of five tenths of a second. Then followed a run of ten bizarre, aberrant arrhythmic ventricular contractions, some of which seemed to be preceded by P waves. The heart mechanism then gradually returned to normal, the QRS complexes remaining bizarre and of small amplitude for

a few seconds. The ST interval remained depressed for a slightly longer period.

The immediate postoperative course was distressing and ominous, because of the effects of cerebral anoxemia. Excerpts from the neurologic notes by Dr. James C. Fox Jr., which follow, summarize the most important aspects of the recovery period: The patient could be aroused for the first time ten

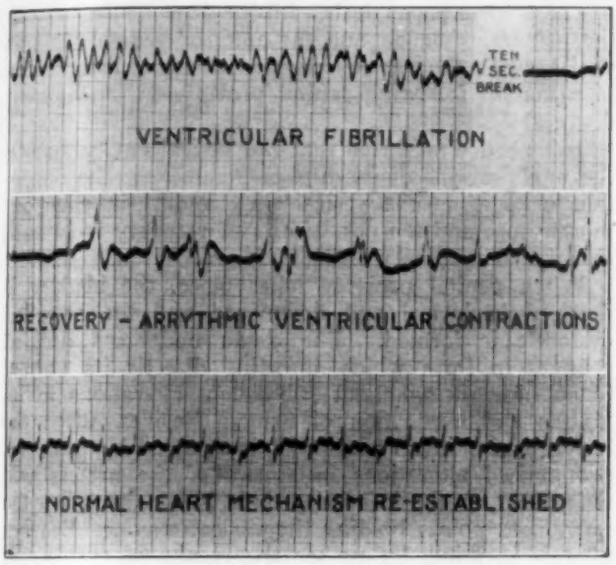

Fig. 3.—Electrodiagrams showing ventricular fibrillation, recovery and final normal rhythm.

hours after operation, and he then spoke a few words. During the first twenty-four hours he remained restless, but lapsed into periods of sleep. His vision was impaired, but he could count fingers accurately. He could give his name. During the second twenty-four hours he became progressively more wakeful and talkative, but was confused. There was evidence of clumsiness of the hands, associated with bilateral astereognosis. Improvement continued, and on the fourth day he was alert, calm, oriented and in good rapport. His span of attention, however, was short, and he tired easily. He was unable to write his name, but could form a few letters. Progress continued, and by the fourteenth postoperative day he was able to write. He could feed and dress himself. He was interested in simple forms of occupational therapy and in comic books (fig. 4). His visual acuity was 20-50, and his visual fields showed no contraction.

The thoracic wound healed cleanly except for a small stitch abscess. The pleural cavity remained free from infection. A small superficial abscess developed in the foot during the second week, in spite of the prophylactic administration of penicillin, but cleared promptly with conservative therapy. During his convalescence two supportive transfusions were given. The hematocrit was never recorded below 32. Several electrocardiographic tracings were all reported as normal. On August 11, the twenty-sixth postoperative day, he was discharged from the hospital to his home, an alert but spoiled child.

After his discharge he continued to improve. He could walk and run without a limp. He returned to school and obtained a score of 108 in the form A Otis Quick Scoring Mental Ability Test. His visual acuity returned to 20-15. On December 20, five months after operation, his mother stated, "He is the same boy we took to the hospital, and the problems we have with him now are the same ones that were present before his injury."

COMMENT

The heart has an inherent capacity to function as a pump, but when sudden circulatory arrest occurs no one can foretell whether a few stimulatory manipulations of the heart through the diaphragm will induce an effective rhythm or whether a prolonged period of artificial circulation by cardiac massage will be necessary. Time is at a premium and must not be squandered. The dead line for complete recovery is three minutes and ten seconds.[13]

If the thorax is open when the heart stops, massage can be quickly and effectively executed. If the abdomen is open when the heart stops and massage through the diaphragm does not produce a palpable radial or carotid pulse, the massage is probably not effective in propelling the circulation and the heart should be securely grasped by actually entering the chest without delay, either through the left side of the diaphragm [7a] or through a new transthoracic incision. When neither cavity is open, a direct anterior intercostal approach, through the left fourth or fifth interspace, should be made. This will allow the index and middle fingers of the left hand to be placed directly against the heart, so that effective intermittent compression of the ventricle against the sternum can be done. The maintenance of adequate respiratory exchange by intermittent compression of the breathing bag containing oxygen is as vital as the cardiac massage. The anesthetist must maintain a clear airway in a closed system, assured, if possible, by the insertion of an endotracheal tube. The pressure applied to the bag should be sufficient to expand the thorax, but must not produce dilatation of the stomach.

When an adequate circulation has been established by manual propulsion of the blood and when anoxemia has been controlled by artificial respiration, the first

Fig. 4.—Photograph of the patient, taken eleven days following operation.

crisis has been surmounted and there is time to consider the available measures for reestablishing an effective heart beat. The diagnosis of the type of cardiac disorder will determine the further course of treatment.

13. Weinberger, L. M.; Gibbon, M. H., and Gibbon, J. H., Jr.: Temporary Arrest of the Circulation to the Central Nervous System: Physiologic Effects, Arch. Neurol. & Psychiat. **43**: 615-634 (April) 1940.

In cardiac standstill observers [14] describe an absolutely quiet heart, while in ventricular fibrillation aimless ripples can be seen beneath the pericardium. Even though only one previous electrocardiographic tracing of this surgical and anesthetic emergency [15] with recovery has been published, it is apparent that the electrocardiograph is of great diagnostic as well as academic importance, as it alone establishes beyond question the true nature of the cardiac episode.

If it has been determined that the ventricles are in fibrillation, procaine hydrochloride, 5 to 10 cc. of a solution of 1 per cent concentration, should be given intravenously or directly into the heart. With good fortune a brief postundulatory pause will occur, to be followed by effective coordinated ventricular contractions. If defibrillation does not occur, the dose can be repeated or, if the equipment is available, electric stimulation, as outlined and perfected by Beck, may be applied. Epinephrine should be reserved for cardiac standstill and is best given intravenously, into the heart or into the cardiac muscle, in a dose not exceeding 1 cc. of 1 to 1,000 dilution. Epinephrine may be valuable during recovery following restoration of cardiac action to strengthen contraction of the myocardium. It should not be used in the presence of ventricular fibrillation, as it makes a hyperirritable myocardium more irritable and more difficult to control. By the same token, a heart in standstill may be thrown into ventricular fibrillation if the dose of epinephrine is excessive. In the presence of an uncertain diagnosis, procaine hydrochloride is the drug of choice and should be given promptly to facilitate the reestablishment of normal cardiac function. If hemorrhage and shock are complicating factors, blood should be given to assure an adequate cardiac filling.

When coordinated cardiac action has been resumed and the operation completed, the damage of anoxemia must be estimated and emphasis directed at aiding and encouraging the recovery of injured cerebral and cortical tissue. If the period of circulatory arrest was less than three minutes, complete recovery may be expected, but if more than eight minutes, survival is not likely.

In conclusion, it may be said that in the presence of sudden circulatory arrest inaction and indecision will lead to a certain fatality. Just as artificial respiration is mandatory for respiratory failure, so cardiac massage must be quickly and effectively instituted for circulatory arrest and, if necessary, supplemented by the considered and judicious administration of procaine hydrochloride, epinephrine, electric stimulation of the heart, or all three.

SUMMARY

A case of circulatory arrest due to proved ventricular fibrillation of twenty-seven minutes' duration, with complete recovery, is presented. Cardiac massage was employed and procaine hydrochloride administered intravenously to reestablish regular rhythm.

Electrocardiograms, indicating the existence of ventricular fibrillation, a period of transition leading to recovery and the final normal rhythm, are shown.

Suggestions for the handling of similar situations are presented.

179 Allyn Street.

14. Beck and Mautz.[3] Adams and Hand.[5]
15. Beck, Pritchard and Feil.[9] Beck, C. S.: Personal communication to the author.

THE BLADDER IN GENITAL PROLAPSE

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In 1946 I published with E. G. Murray a paper on the morphology of the bladder in cystocele.[1]

The present paper deals with the dependence between the urinary reservoir and the anterior vaginal wall, as well as with the various physiopathologic disturbances of urination following genital prolapse in its different degrees.

The particular forms that the vesical cavity adopts, the modifications of its different diameters, the important changes in the vesical neck and their effect on micturition, and the possibilities of recovery from such urinary complaints will be discussed.

When genital prolapse takes place, the bladder is dragged backward and downward and the so-called cystocele is formed. The organ undergoes decided changes in form which, affecting directly its normal functioning, bring about subsequent alterations in its kinesis and evacuation of urine. Besides, when the lower part of the vesical wall is dragged by prolapse, pronounced alterations in kinesis of the ureters will take place, as the inferior ends of these ducts are the only fixed points holding the vesical trigone. Bearing all this in mind, let us see the results of cystoscopic and roentgenographic examinations.

CYSTOSCOPIC APPEARANCE

Normal Bladder.—Although cystoscopic description of the normal bladder is out of place here, I shall only point out the parts that will suffer changes after genital prolapse.

During cystoscopic examination of the bladder filled with 150 cc. of fluid, the vesical walls, in a normal person, are definitely convex. The air bubble is always seen in the dome; the mucosa is pink and presents a smooth, shining surface. The vesical trigone is symmetrically placed in the median line; it is an equilateral triangle formed by the ureters and the vesical ostium. The interureteric ligament, scarcely marked, enables one to see the whole retrotrigonal wall. The vesical neck, of a triangular shape, must be regular; its posterior lip, larger than the anterior lip, is slightly protruding and motile when the patient starts micturition.

CYSTOSCOPIC APPEARANCE DURING PROLAPSE

First Degree Prolapse.—Vesical changes in prolapse of the first degree may be slight but they are always present, and, although in most patients examined the bladder was almost normal, a careful examination will show alterations appearing in the vesical wall proper, which becomes slightly trabeculated through hypertrophy of the plexiform layer. The air bubble tends to be displaced toward the anterior wall. The vesical trigone begins to undergo some changes caused by the ureter's pulling it, thus destroying its regular outline. The interureteric ligament and the vesical fundus appear more pronounced. The vesical neck also undergoes changes: the posterior lip becomes hypokinetic.

From Alvear Hospital.
Read before the Section on Urology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

1. Murray, E. G., and Trabucco, A., in Congreso argentino de ginecologia y obstetricia, 194, p. 1398.

In prolapse of the second degree the foregoing modifications gradually becomes more pronounced until, in prolapses of the third degree, one can observe decided modifications in the vesical walls; the trabeculated bladder is the rule; the mucosa presents symptoms of infection, usually of a chronic type; the air bubble appears displaced anteriorly and is sometimes above the anterior lip of the vesical neck; the trigone is markedly modified; it is irregular and hypertrophic; the protruding interureteric ligament bounds an enormous vesical fundus with thick trabeculated walls; the posterior lip of the vesical neck, less marked and immobile, appears elongated in a longitudinal direction and is lower than the anterior lip; the ureteral meatuses which form the angles of the trigone appear as if pulled upward, deformed and open.

ROENTGENOGRAPHIC EXAMINATION

Although cystoscopic examination will show the state of the bladder during genital prolapse, it cannot show clearly the condition of the vesicourethral outline and the deviations of the vesical and urethral diameters from the normal state.

In order to make a comparative study, one should see first the normal bladder filled with opaque substance, in a picture taken with the patient standing in anterior half lateral position, avoiding the large osseous portions of the pelvis and trochanters and with a degree of inclination that will enable one to see the antero-

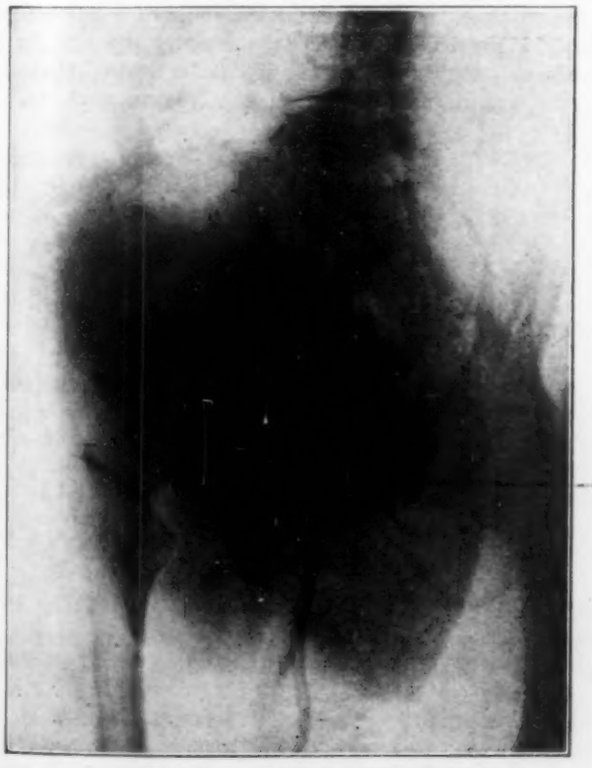

Fig. 1.—Normal bladder, half lateral standing position.

posterior outline of the bladder. To produce contrasts, the bladder was filled with 250 Gm. of 6 per cent sodium iodide.

Normal Bladder.—A normal cystogram of a woman standing in half lateral position shows the vesical globe of an elliptic regular shape, divided into two equal portions by the urethral axis. The air bubble, which is always found, appears definitely differentiated from the vesical opaque medium; it is located in the upper median portion. The upper border of the bladder is formed by a semicircle, the radius of which is longer than that of the anterior and posterior portions; no deformations are present. The border corresponding

Fig. 2.—Prolapse of first degree, half lateral standing position.

to the vesical base is divided into two equal parts by the urethra; it is slightly concave, forming what I have called the anterior and posterior fundus, the latter being more pronounced.

The urethra enters into the bladder perpendicularly to its base and presents a slight anterior concavity; this sign is of the greatest importance when compared to pathologic conditions that will be described later. The vesical neck has a great importance in this study. In order to see it clearly, it is often necessary to reduce the contrast substance or inject through the urethra only 20 cc. In normal persons the vesical neck is clearly distinguished by two lips, anterior and posterior; the anterior lip forms a right or slightly obtuse angle, the sides of which are the urethra and the inferoanterior vesical wall, and the posterior lip forms a right or acute angle the sides of which are the urethra and the vesical trigone. This posterior lip of the neck is always placed slightly above the inferior lip, in relation to an imaginary line crossing this zone horizontally (fig. 1).

ROENTGENOGRAPHIC PICTURE IN FIRST DEGREE PROLAPSE

Cystography, as described, will show that the vesical globe tends to be displaced backward; it is laterally elongated and adopts an ovoid shape with a larger posterior circumference. The air bubble is beginning to be displaced backward.

The urethra penetrates into the anterior part of the lower border of the bladder instead of the median part, as normally; besides, the anterior fundus has become smaller while the posterior fundus has become exca-

vated and is lower than the imaginary horizontal line passing through the vesical neck.

The urethra gets in contact with the bladder, following an upward and backward direction.

The vesical neck shows striking characteristics: The anterior lip becomes an acute angle instead of a right

Fig. 3.—Accentuated prolapse with the peculiar stomach-like image, half lateral standing position.

or obtuse angle as in normal persons; the posterior lip becomes an obtuse angle instead of a right angle, and it appears flat in the roentgenogram and below the anterior lip.

SECOND DEGREE PROLAPSE

In prolapse of the second degree the roentgenogram accentuates the condition described before. The vesical globe is dragged more and more backward and downward, three fourths being located behind the perpendicular vesical diameter, which passes through the vesical neck, presenting a decidedly ovoid posterior shape. The air bubble is displaced backward and the anterior portion of the bladder looks rather small.

In the vesical base, the anterior fundus gradually disappears. The posterior fundus, on the other hand, becomes more pronounced and is placed well down the imaginary line which passes through the vesical neck. The urethra almost touches the lower border of the bladder at an angle between 5 and 10 degrees.

The vesical neck appears clearly deformed, funnel shaped and half open, and its anterior lip always forms an acute angle, while its posterior lip, clearly seen below the anterior lip, forms an obtuse angle.

THIRD DEGREE PROLAPSE

In decidedly protruding prolapse of third degree, curious pictures are seen that reveal the almost complete falling downward and backward of the bladder.

The shape of the bladder is stomach-like; when it is not completely filled with opaque substance it appears to have an upper air chamber. The whole organ is displaced backward and hanging, and its inferior border is manifestly modified. The anterior fundus has practically disappeared, while the posterior fundus is seen far below the horizontal line passing through the vesical neck.

The urethra is no longer vertical as in normal persons, nor horizontal as in prolapses of other degrees, but markedly slanting downward and backward.

The angle of the anterior lip of the vesical neck is visibly acute and that of the posterior lip rather obtuse: the latter is quite below the horizontal line across the vesical neck and is covered by the anterior lip.

PHYSIOPATHOLOGIC OBSERVATIONS

Cystoscopic and roentgenographic examinations of the bladder with cystocele throw light on several symptomatologic questions and disturbances of micturition.

From the urologic point of view, the patient presents disturbances of micturition, the symptoms depending on the degree of prolapse and the inflammation of the bladder. This inflammation of the bladder is an additional condition, and for this reason I will not insist on it.

The urologic symptoms bearing on prolapse are: (1) dysuria, pollakiuria and incontinence during muscular efforts; (2) incontinence with total voiding of the bladder, and (3) incontinence, paradoxically accompanied by more or less pronounced retention of urine. These three symptoms characterize the three degrees of prolapse.

Close observation of the roentgenogram will reveal that the greater the prolapse, the more the bladder is displaced backward, thus changing the normal anatomy of the organ, particularly of the vesical neck. The

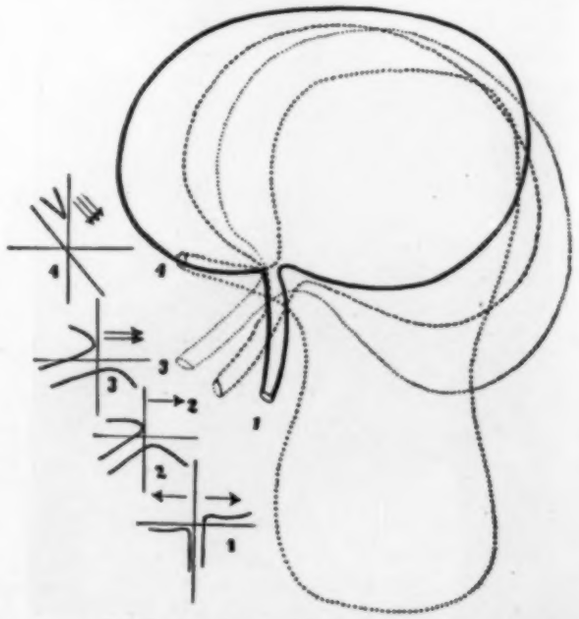

Fig. 4.—(1) Normal bladder; (2) first degree prolapse; (3) second degree prolapse; (4) third degree prolapse.

posterior lip, instead of forming a right or slightly acute angle placed above the anterior lip, is observed during prolapse obtuse, half open and pulled downward and backward. This deformation affects the urethra and forces it to change its direction from the vertical to the backward, downward oblique direction, passing previously along the horizontal line.

It is known that urination is affected by displacement of the posterior lip of the vesical neck. This was proved in man (1931) when a muscle was found which was called "muscle proper of the bladder neck." The existence of such a muscle was confirmed by Monserrat [2] (1934) in man, and by Manzoni [3] (1946) in woman. The latter observed that the muscle stretches from the vesical neck to the lower third portion of the posterior wall of the urethra. One should add, from the anatomic point of view, that there is, below the trigone, a rich nerve plexus which receives in its turn the branches of the hypogastric plexuses from both sides of the bladder.

Bearing in mind what has been shown in the papers mentioned, one recognizes the existence of a double physiologic system which will determine evacuation of urine; one, definitely functional, is governed by the nervous system, while the other, mechanical, is conditioned by the situation of the lips of the vesical neck and of the muscle of the vesical neck. The functioning of this mechanical system depends on the nervous system.

In first degree prolapse there is a dragging of the bladder by the uterus which determines the pulling of the nerve plexuses controlling the vesical neck. The symptoms which reveal this alteration are: frequent urination caused by irritation through pulling of the nerve plexuses and dysuria caused by elongation of the subvesical nerves; this functional dyskinesis will render immobile the posterior lip of the vesical neck.

Moreover, if the dragging is more pronounced, the posterior lip will be displaced backward, being separated from the anterior lip, which will be firmly held by its strong pubovesical ligaments. With the displacement of the posterior lip, mechanical failure will ensue, and although it might be functionally immobile on account of dyskinesis (as has been explained), it will be exposed to serious disturbances of the vesical mechanism. When the bladder is full of urine, any pressure of the abdominal walls, as when laughing or coughing, will bear on the vesical content, and this, in its turn, will tend to be evacuated through the opening of least resistance, the lower lip of the vesical neck. The lower lip is found, as I have already stated, below the anterior lip, and thus any contraction of the abdominal walls will be directly transmitted to the lower wall of the bladder, forcing it to open its neck, no longer sustained, and let the urine flow. This urinary symptom, called "incontinence during muscular efforts," is of the greatest importance in the cystocele that is just beginning.

In second degree prolapse, in which there is decided displacement of the uterus, there are greater changes in the walls of the bladder and the vesical neck, as already seen.

The anterior lip of the vesical neck will be held by the firm pubovesical ligaments, but the posterior lip will be dragged by the prolapse and will become separated from the anterior lip. Lack of mechanical urinary control will be complete and the functional system will have disappeared. Total uncontrollable incontinence will ensue, and the urine will be discharged as soon as it drains the ureters; this is "total incontinence" typical of advanced prolapse.

Should the prolapse become greater—that is, third degree prolapse—the whole vesical neck is displaced and the anterior wall of the urethra remains attached to the pubis by the pubic ligaments. Prolapse therefore brings about a great change in the relations between the urethra and the bladder, the axis of the urethra being directed backward and downward. The bladder will then drain defectively and will appear as a stomach-like bag, with the larger cavity under the vesical neck, protruding, so to speak, through the vulva when the inferior bladder wall is dragged down by the prolapsed uterus. Psychopathologic modifications are exclusively mechanical. In these dysfunctions of micturition both the vesical neck muscle and the nervous system controlling it are practically akinetic. The urine thus collects in the bag of the vesical fundus and is only drained when its level reaches the line above the vesical neck. There is no control over micturition and the patient suffers from the greatest derangement in evacuation of urine during prolapse: "incontinence with urine retention."

Rivadavia 1917.

2. Monserrat, J. L.: Read at the meeting of the Sociedad Argentina de Urologia, 1934.
3. Manzoni, A.: Rev. méd. de Rosario **37**: 279 and 367, 1947.

ABSTRACT OF DISCUSSION

DR. VIRGIL S. COUNSELLER, Rochester, Minn.: In the discussion of incontinence, one must recognize both acquired and congenital types. One must be careful to differentiate in the adult between these two types before surgical repair is attempted, because in the congenital type attempts at surgical repair lead to failure. In the congenital type, atrophy is the basis for extreme degrees of incontinence. In epispadias there is incontinence but the defective parts cannot always be seen in this condition. Spina bifida, both partial and complete, is another highly important congenital condition that is associated with incontinence. Women who normally do not have any incontinence may, after the delivery of a child even without severe trauma, become partially incontinent; also, some women who have not had children but who suffer from some type of an injury, such as a fall on the buttocks, or who have spina bifida will later become partially incontinent, the incontinence in both instances being due to the faulty innervation of the bladder neck. It is difficult to do any type of surgical procedure that will correct incontinence under those conditions. One should be careful, first of all, in the selection of patients who are to be treated surgically for incontinence and one should remember, secondly, that there is more than one way to do a thing. The easiest and simplest way that applies to the particular patient is preferable. I think that the majority of patients with incontinence can be treated vaginally. Many of the patients with incontinence of the recurring type previously have been operated on below and have so much scar tissue that it is impossible to do anything vaginally. Therefore, it was suggested by Foley that the surgeon go down suprapubically, open the bladder and, with a de Pezzer catheter in the bladder, note the sphincter, split the anterior wall of the bladder, the sphincter and the proximal third of the urethra and reconstruct from there up, having in mind that maybe there is muscle over the proximal third of the urethra. I believe that this operation has a definite place. Finally, I wish to point out that, after the surgeon has operated on these persons, it is important to observe the urethra because it is almost impossible to do any operative procedure on the urethra and have it remain straight; usually there will be hills and valleys in the floor of it. The result is that when the patient urinates a little urine is retained in the valleys which gives rise to inflammation and subsequently to frequency, urgency and infection. Thus, it is important that the surgeon look in the urethra, and when he finds some of these hills and valleys he should straighten them out by means of sounds before they cause trouble.

GENERAL PRACTITIONERS SESSION

CARE OF THE CANCER PATIENT AFTER HE RETURNS HOME

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Before a patient who has been treated for cancer is discharged from the hospital he should be reassured concerning his condition, because too many persons believe that cancer represents a hopeless condition and that nothing can be done for it, which, of course, is contrary to the facts.

Most patients with cancer who have been seen early and who have had adequate therapy are well, should be reassured of this fact so that they will not fear the persistence of the malignant growth. Even the patient who has had a palliative procedure or in whom a cure was not possible should be reassured about his condition unless there is some definite indication for his being told the true facts.

The person who has been treated for cancer should report back to the attending physician at regular intervals for subsequent observation and examination. In this way, the recurrence of the neoplasm or the development of other manifestations can be detected at a time when something possibly can be done.

Whereas before the definitive therapy of a cancer can be undertaken the patient may have symptoms referable to his lesion, such as pain, interference with normal function of a viscus, such as obstruction of a hollow viscus, or ulceration with its consequent anemia, a patient who has had definitive therapy is relieved of these symptoms. The anemia which previously was a prominent factor and produced severe symptoms no longer exists because, with the removal of the malignant process, there is no longer loss of blood and no further interference with the hemopoietic function so that the patient is able to continue in a fairly normal way. His appetite is better, he is able to enjoy his food and to remain free from symptoms. If, for any reason, there has been resection of the upper part of the digestive tract, such as the mouth, it may be necessary during the preliminary period to feed the patient by tube. In such an instance, it is important to give a diet as nutritious as possible, particularly containing large amounts of proteins, because unless adequate amounts of protein are available, the normal reparative processes are interfered with. The same is true of the patient with a gastrostomy. One is limited, of course, in these instances by the size of the tube which can be inserted either into the esophagus or into the stomach. By means of mixing apparatuses, one can liquefy otherwise solid material and in this way get large amounts of nutritious substances into the digestive tract without much difficulty. In the occasional case in which a tracheotomy has been necessary as a temporary or permanent procedure, it is imperative that some type of suction apparatus be available in order to aspirate secretions from the trachea when they accumulate because of the difficulty which these patients have in expectorating the viscid secretions.

Unless there is some definite contraindication, it is desirable that the patient who has been operated on for malignant disease return to his normal activity as soon as possible. This is of importance not only as regards the healing of his lesion but also because of the beneficial effect on his morale. It is now generally agreed that early ambulation is desirable in the postoperative period because of more rapid reestablishment of normal bodily function but also because of the psychic effect on the patient.

In the patient who has had a resection of the distal colon for malignant disease with the production of an abdominal anus, it is extremely important that a great deal of attention be paid to the colostomy in the early postoperative period. Contrary to what is commonly thought by most laymen and by too many physicians, a colostomy is something not to be feared; with proper care, a person with a colostomy can carry on his normal activities without any difficulty and in no different way from the perfectly normal person. Although a patient who has had a colostomy done as a palliative procedure in which the malignant disease was not resectable does have difficulty with his colostomy in that it is difficult to control the bowel evacuations because of the irritative effect of the malignant lesion, the patient who has had a curative resection of his malignant growth will have no difficulty in controlling his bowels. These patients should be placed on a constipating diet in order to inspissate the feces. They should not be given bags or apparatuses, but should be instructed to take an enema every second or third day in order to evacuate the colon at that time. If this is done, a complete evacuation of the colon is accomplished at one time and in the meantime the patient can go without any fear of discharge of fecal material and without the necessity of wearing a bag or other cumbersome apparatuses. The attention to these few details in a patient who has had an abdominoperineal resection for cancer will do more to rehabilitate that patient to a normal life than probably anything else and will abolish the fear in the minds of other persons who have similar lesions.

Occasionally the patient with cancer in whom resection has not been possible continues to have an ulcerating wound. At times the odor from these ulcerating masses is considerable and extremely disagreeable not only to the patient but also to other persons. In such instances, frequently the changing of the bacterial flora of the ulcerating lesions is possible by changing the mediums. Granulated sugar sprinkled into the ulcerating mass will frequently change the culture medium sufficiently to alter the bacterial flora to eliminate the undesirable odor. The application of chlorophyl ointment to the wound is also frequently of value.

The unfortunate person whose cancer has not been eradicated and who continues to have pain because of the persistence of the lesion can be kept comfortable either by the liberal administration of opiates, which is perfectly justifiable in such a hopeless case, or by a more radical attack on the nerve supply to the lesion. Simple injection of procaine hydrochloride into the involved nerves followed by infiltration with alcohol frequently gives remarkable and astonishing relief. In more persistent cases the intrathecal use of alcohol at times is justified, and in even more persistent and terrible cases cordotomy may be a humanitarian procedure. Although these are only palliative procedures, they are perfectly justifiable in the case of the person who is having otherwise uncontrollable pain.

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Read in a panel discussion on the care of the posthospitalized patient with cancer at the interim meeting of the American Medical Association, Cleveland, Jan. 7, 1948.

POSTHOSPITALIZED PATIENT WITH CANCER

Medical and Psychiatric Aspects

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Chicago

Patients subjected to a presumably curative procedure, usually removal of the cancer, need relatively little care after they leave the hospital; on the other hand, those with incurable cancer usually require a great deal of attention from the physician. I shall not discuss the "cured" group, except to point out that often the morale of these patients is impaired; they require strong reassurance and rehabilitation together with the usual medical procedure such as a diet high in calories and high in protein.

The physician in charge of a patient with inoperable cancer should examine the evidence to make certain, first, that the diagnosis is valid and, second, that curative procedures are really not possible. The diagnosis of cancer is sometimes incorrect, even when it appears to be obvious, and not all apparently inoperable lesions are really inoperable. These points may be emphasized by illustrative cases.

REPORT OF CASES

CASE 1.—A man aged 43 years entered the hospital because of extremely severe continuous epigastric pain of six months duration radiating through the body to the back. The referring physican reported that an exploratory laparotomy had disclosed an inoperable carcinoma of the pancreas. The patient was referred for chordotomy to relieve the intractable pain. While arranging for the operation, it was noted that the vomitus consisted chiefly of large amounts of watery, highly acid gastric secretion. Further study disclosed roentgenologic evidence of an ulcer of the posterior wall of the duodenum. When the patient was placed on appropriate antacid management the pain disappeared. Seven years have now passed; the patient is alive and well. The error here was that of relying on gross findings at operation; there was no biopsy; further clinical study or perhaps a more careful examination at the time of the exploratory laparotomy would have disclosed the duodenal ulcer and thus prevented the near tragic and erroneous diagnosis of inoperable pancreatic neoplasm.

CASE 2.—A man aged 48 years was subjected to operation in May 1942 for cancer of the rectosigmoid. The patient was a poor risk because of an old myocardial infarction. At operation two metastases were found in the liver; consequently, a colostomy was performed and no attempt made to remove the primary lesion. Two and one-half years later, the patient was again submitted to laparotomy; the liver was perfectly normal; there were no regional or distant metastases; the tumor was removed. There has been no evidence of recurrent neoplasm in the subsequent three years. The error in this instance consisted in failure to make a biopsy of the presumed hepatic metastases at the first operation and in the consequent assumption that the primary lesion was inoperable.

CASE 3.—Brunschwig [1] has shown that many apparently inoperable cancers are, in fact, operable. A patient aged 55 years entered the hospital with the picture of complete extrahepatic biliary obstruction. The presumptive diagnosis was carcinoma of the head of the pancreas, a lesion considered, at that time, to be inoperable. However, the patient was subjected to laparotomy; Dr. Brunschwig found a primary carcinoma of the ampulla of Vater and resected the tumor; recovery was uneventful. Three years later the patient returned with abdominal pain, diarrhea and loss of weight; a mass was palpated in the right side of the abdomen; roentgenograms disclosed a filling defect in the ascending colon. At operation, Dr. Brunschwig found a primary carcinoma of the ascending colon; there were no metastases; resection was again followed by uneventful recovery. The patient is still alive and well, five years after the first operation and two years after the second.

COMMENT

Unfortunately, however, the diagnosis of inoperable neoplasm is usually correct and the problem is purely that of palliation. The standard hygienic procedures are diet, rest and exercise, all of which should be prescribed by judgment rather than by rule. Ordinarily a diet high in calories and high in protein is desirable; it must be cooked well; moreover, it should be served attractively and cheerfully. Rest and exercise are of both physiologic and psychologic value; they should be advised in graduated amounts as tolerated by the patient.

The chemotherapy of malignant disease seems to be entering a new era; its eventual complete success will be hoped for, but, at the present time, that goal seems remote. Arsenic has been used for many years in the treatment of leukemia, often wth dramatic palliative results.[2] Certain aleukemic states, reticulum cell sarcomas or lymphoblastomas, may likewise respond in a most gratifying manner with a clinical remission and objective evidence of regression, such as a decrease in the size of an enlarged spleen or liver. The more common inoperable cancers, however, seem at present to be completely unaffected by arsenic or by any of the chemotherapeutic measures used thus far. The nitrogen mustards [3] have proved helpful in Hodgkin's disease and in other neoplasms of the lymphatic system chiefly as an adjunct to radiation therapy. In certain cancers, notably carcinoma of the prostate and of the breast, hormonal therapy has produced spectacular results, although it has not replaced surgical removal. The estrogens, such as diethylstilbestrol, may be used in advanced prostatic cancer, with or without orchiectomy. There can be no doubt of their palliative effect on the primary tumor and also on the metastatic lesions, particularly those in the skeleton. Castration, be it by surgery, radiation or hormones, inhibits to a variable degree and for a variable period the growth of these specific malignant cells. Huggins,[4] in an analysis of the five year results of orchiectomy, reported that remissions of varying length occurred in 18 of 20 patients with disseminated prostatic cancer; after five years 1 patient was alive with slowly advancing cancer; in 4 there was no clinical or laboratory evidence of cancer. Similarly, the skeletal metastases of mammary cancer may be influenced by large doses of testosterone propionate.[5] However, it is not yet possible to make a final appraisal of the effectiveness of hormonal therapy.

From the Frank Billings Medical Clinic, Department of Medicine, University of Chicago.

Read in a panel discussion on the care of the posthospitalized patient with cancer at the interim meeting of the American Medical Association, Cleveland, Jan. 7, 1948.

1. Brunschwig, A.: Radical Surgery in Advanced Abdominal Cancer, Chicago, University of Chicago Press, 1947.

2. Forkner, C. E.: Leukemia and Allied Disorders, New York. The Macmillan Company, 1938.

3. Spurr, C. L.; Jacobson, L. O.; Smith, T. R., and Barron Guzman, E. S., in Approaches to Tumor Chemotherapy, American Association for the Advancement of Science, Washington, 1947, pp. 306-318.

4. Huggins, C. B.: Prostatic Cancer Treated by Orchiectomy: The Five Year Results, J. A. M. A. **131**: 576-581 (June 15) 1946. Huggins, C., and Johnson, M. A.: Cancer of the Bladder and Prostate, J. A. M. A. **135**: 1146-1152 (Dec. 27) 1947.

5. Herrmann, J. B.; Adair, F. E., and Woodard, H. Q.: The Use of Testosterone Propionate in the Treatment of Advanced Carcinoma of the Breast, Surgery **22**: 101-119 (1947)

The question is often asked as to which drugs should be used for the relief of pain in incurable cancer. Here again no arbitrary answer can be given, for so much depends on the patient, the family, the physician and the total situation. Generally speaking, the wise physician will choose the drugs needed to give relief. The barbiturates do not ease pain; they do reduce nervous tension and they bring greatly needed sleep and rest. Chloral hydrate is used less frequently, but may be helpful. In some circumstances as the inevitable end approaches, these drugs alone may enable the patient to sleep life peacefully away. Usually, however, it will be necessary to combine the hypnotic drugs with opiates; in fact, if opiates are used in adequate amounts, other medications may often be discarded. Codein may suffice for a few days or weeks, but usually it becomes ineffective. Morphine in doses of ⅛ to ¼ grain (8 to 15 mg.) may be given as frequently as needed; addiction is not to be feared. The smoking of opium is foreign to Western culture, but in this particular situation it might prove of as great value for us as it has for the Chinese. The various substitutes for morphine, such as meperidine hydrochloride, are rather effective. The physician should use in adequate amounts the drugs with which he is familiar.

Thus far I have dealt with the more tangible phases of the care of the patient with incurable cancer, but perhaps not with the more important ones, the attitude of the patient and of his family to the disease and its ultimate inevitable outcome. Usually the first questions to arise are what the patient should be told and what should be said to the family. Opinions differ with regard to these questions; doctors differ; situations differ and change. Certainly the patient should be told enough to induce him to carry out the treatment indicated, to enable him to make the proper decisions and to dispose of essential business matters. I have rarely considered it necessary or wise to tell a patient bluntly that he has a cancer. The connotations of the word "cancer" are, as a rule, much worse for the layman than for the physician; consequently, softer and less final words such as ulcer, growth and tumor may often be used to advantage. If the patient then persists in his questions and insists on knowing whether the lesion is "malignant," one may decide to give the direct affirmative answer, qualified, perhaps, with the explanation that malignant lesions vary greatly in their rate of growth and that some malignant lesions are relatively benign. Such statements are, in fact, the truth, and they have the further advantage that they leave with the patient a ray of hope. It is cruel to destroy all hope; furthermore, the physician's diagnosis and prognosis may be wrong! The physician's task, after all, in this particular disease is to ease both the physical and the mental suffering of the patient as much as possible.

If a cancer is removed at operation, little is gained by gleeful statements to that effect; softer words with reassuring instructions and smiles are more helpful. If the cancer proves inoperable, then appropriate explanations are in order, accompanied again by instructions for the further management. Of course, the family, or at least, some responsible member, should be told frankly of the situation and should be kept informed as developments arise not only for the protection of the physician, but, more particularly, in order that the most satisfactory environment for the care of the patient may be created.

In theory, at least, the religious views of the patient are of no concern to the physician; in practice, however, the physician, consciously or unconsciously, takes them into consideration; they help to determine the attitude of the patient. This is scarcely the appropriate time or place to discuss questions of religious faith, but there are enormous differences in the way in which people face the imminence of death; some accept it with courage and fortitude, with a transcendent faith and serenity of spirit; others face it with fear and terror; some refuse to face it at all. The physician cannot alter the patient's basic reaction, but he should understand it. By attitude, rather than by word, he should provide as much strength and fortitude as possible. The physician is not called on to assume primary responsibility in spiritual matters; these are the private concerns of the patient, his family and the minister, priest or rabbi; every family physician knows, nevertheless, that in such times of crisis his role is not a minor one. The splendid monograph by the late Richard Cabot and his minister friend, Russell Dicks,[6] on "The Art of Ministering to the Sick" can be read with great profit, for it provides many insights and gives a better understanding of the differing reactions of patients to illness and approaching death.

Death, of course, is inescapable; it comes in various ways. Most of us, perhaps, would prefer it to come suddenly, silently, painlessly, when we are totally unaware of its approach. You will recall, however, than Hans Zinsser felt differently, for, as leukemia ran its course, he "felt increasingly grateful for the fact that death was coming to him with due warning, and gradually." In his last sonnet he wrote "Now is death merciful.—How good that 'ere the winter comes, I die!"[7]

Francis Peabody, in his middle forties, at the very fruition of his medical career, accepted the tragedy of an advanced gastric cancer with a similar transcendant tranquillity of spirit. He met this desperate situation "without defiance, without dismay, without show of regret and . . . without resignation. . . . It was accepted quietly, as a thing all in the day's work, handsomely, as a gentleman should accept a challenge."[8] Zinsser and Peabody had both achieved a fulness of life; the flower of their spirits had blossomed into full bloom; death held no terror for them. At an earlier age or under different circumstances, it might have been otherwise. You will recall Fitz-Greene Halleck's poem[9]:

> Come to the bridal chamber, Death,
> Come to the mother's, when she feels
> For the first time her first-born's breath! . . .
> Come when the heart beats high and warm,
> With banquet-song, and dance, and wine!
> And thou art terrible!—the tear,
> The groan, the kneel, the pall, the bier,
> And all we know, or dream, or fear
> Of agony are thine.

6. Cabot, R. G., and Dicks, R. L.: The Art of Ministering to the Sick, New York, The Macmillan Company., 1936.
7. Zinsser, H.: As I Remember Him, Boston, Little, Brown & Company, 1940, p. 441.
8. Warthin, A. S.: In Memoriam, Tr. A. Am. Physicians 43: 13 1928.
9. Halleck, F. G.: Marco Bozzaris, in Book of Famous Poems, Boston, Hall & Locke Co., 1902.

And so the physician as a fellow human being and as a friend must understand the significance of the approaching tragedy to each patient and to the family. To the physician is given the privilege of sharing in the joys and the sorrows of life, in its heartaches, and in the sacred sublime hours when, with or without the support of family, friends and clergy, the patient enters on the final experience.

It would seem foolish to speak of the psychotherapy of cancer, as if one might influence a neoplasm by any such procedure, but it is not foolish to speak of the psychotherapy of the patient with cancer. Psychotherapy, using the term in its broadest sense, is inevitably present in the treatment of all diseases, whether recognized or not; perhaps, indeed, it is most effective when not recognized and hence given unconsciously. The ability of some patients to deny or blot out pain, to refuse to admit to themselves or to any one else their progressive decline, is an amazing phenomenon. It is seen not infrequently in the practice of medicine; it is utilized by quacks and faith healers; it sometimes misleads physicians, for patients may gain, temporarily, in weight, strength and well-being in spite of the steady advance of the disease. In recent months I have seen a woman bedridden from innumerable osseous metastases of a cancer of the breast rehabilitated after the injection of a "new serum" given by a faithful nurse. The patient was able to resume for several months an active almost normal life in spite of the fact that roentgenograms taken from time to time disclosed rapid progression of the tumor throughout the skeleton instead of the regression anticipated from the excellent clinical condition. The attending physician attributed the symptomatic improvement to the splendid nursing care and the psychotherapy of the "new serum" administered enthusiastically.

This case illustrates the important fact that the practitioner must take an active interest in the progress of the patient; the physician must see the patient frequently at home or in the office; various therapeutic and palliative procedures should be tried, sympathetically, if not enthusiastically, for, while they may not have any value from a scientific point of view, their suggestive and psychotherapeutic value may be very great.

These brief remarks on the medical and psychiatric care of the posthospitalized patient with cancer may be concluded with a quotation from Francis Peabody's paper on "The Care of the Patient," [10] written as he gave ground steadily to his own neoplasm, but containing no reference to it. Every physician would do well to bear constantly in mind and, perhaps, especially so when dealing with patients with cancer, the concluding two sentences of this delightful penetrating essay:

> Time, sympathy and understanding must be lavishly dispensed, but the reward is to be found in the personal bond which forms the greatest satisfaction of the practice of medicine. One of the essential qualities of the clinician is interest in humanity, for the secret in the care of the patient is in caring for the patient.

10. Peabody, F. W.: The Care of the Patient, J. A. M. A. **88**: 877-882 (March 19) 1927.

WHAT TO DO FOR THE CANCER PATIENT WHEN HE RETURNS HOME

The Role of the Radiologist

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The problem of what to do for the patient with cancer when he returns home as it concerns the radiologist may be divided into two categories: (1) diagnostic procedures and (2) palliative therapeutic procedures.

DIAGNOSTIC PROCEDURES

The symptoms that occur often in many patients who have had operations for removal of a malignant tumor include tightness of the chest, dyspnea and cough, rapid pulse, pain in the chest, lumbago, pain in any part of the body, headache, diplopia, dimness of vision, ringing in the ears, unsteady gait, loss of appetite, constipation, ascites and fever. It should be emphasized that multiple cancers are not uncommon and that one should be on the alert for such a possibility.

The roentgen examination of the chest is the best method of demonstrating metastatic disease of the lungs, mediastinum and pleura. Metastatic cancer may produce cough, dyspnea, pain in the chest, tight feeling of constriction in the lower part of the chest and a rapid pulse. Carcinoma of the breast is one of the most frequent causes of metastasis to the thoracic structures. Many times the patient thinks that she has a cold which will not clear up, and in such instances, if one has a high index of suspicion, the true nature of the condition can be demonstrated early by a roentgen examination of the chest. Metastasis to the lungs does not always produce a cough.

Lumbago and pain in the hip, shoulder and elsewhere are often due to metastasis to bone from various organs, such as carcinoma of the breast to prostate, or any of the lymphoblastomas. It sometimes is possible to make a clinical diagnosis before the roentgen diagnosis will demonstrate any abnormality. Thus, a roentgen examination of bones which shows no evidence of metastasis should not be regarded as negative unless there is some other explanation for the pain. It is well known by radiologists that unless the cortex of the bone is involved the lesion may not be detected unless one is able to compare roentgenograms made before symptoms with those of an examination after pain has developed.

Lumbago or unexplained fever is oftentimes due to metastases to retroperitoneal lymph nodes. Metastasis to renal lymph nodes from a testicular tumor often causes lumbago or lumbar pain referred to the groin and down the leg. Unexplained fever may be due to enlargement of retroperitoneal lymph nodes in Hodgkin's disease and in malignant lymphomas. Lumbago may be due to blockage of the ureters from carcinoma of the cervix which has invaded the broad ligaments. Urographic roentgen examination and roentgenograms of the abdomen oftentimes will provide the clues as to what is producing the symptoms.

Headache, diplopia, dimness of vision, ringing in the ears and unsteady gait are symptoms that are often

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produced by metastases from carcinoma of the lung and breast. In many hospitals it is a routine procedure for the neurosurgeons to request a roentgen examination of the chest, because they have learned to exclude metastasis as a cause of the neurologic phenomena before operating on the patient for a brain tumor. My associates and I have seen patients with symptoms referable entirely to the eyes that have been produced by metastatic carcinoma from the breast.

Loss of weight, loss of appetite, constipation and ascites are often due to metastases to the liver or other abdominal organs or structures. The symptoms may be acute or may be insidious. If the index of suspicion is high a correct diagnosis will generally be made or suspected of a condition which otherwise might go undiagnosed. The roentgen examination of the abdomen and of the gastrointestinal tract oftentimes will aid one in arriving at a correct diagnosis.

One of the most neglected fields in radiology is the follow-up examination after major surgical procedures. This is particularly true in gastric and colon operations, surgery of the lungs, surgery of bone and neurosurgical procedures on the head and spine.

We believe that every patient who has an operation for removal of a part, or for reconstruction, should have a follow-up roentgen examination. Such studies provide a base line for diagnosis should the patient subsequently show symptoms and have a roentgen examination.

PALLIATIVE THERAPEUTIC PROCEDURES

Radiation therapy like roentgen diagnosis covers such a large field that it is impossible to do otherwise than mention a few conditions that respond well to radiation and provide some degree of palliation.

Pain due to metastasis to bone may in many instances be relieved by irradiation. When destruction of bone is present, new bone forms after therapy and the symptoms disappear. Even when a pathologic fracture develops, the bone heals after irradiation in most cases.

Pain due to metastases to the spinal cord does not respond well to irradiation. Some other procedure such as surgery is more efficacious. On the other hand, if the pain is relieved by surgical measures, irradiation does provide palliation and may have a distinct retarding effect on the growth.

Cough and dyspnea and pain in the chest may oftentimes be relieved by radiation, even small doses.

Inoperable metastases and recurrences in many instances are helped and occasionally cured by appropriate irradiation.

It may be well to discuss briefly my views concerning the role of irradiation in the treatment of carcinoma of the breast.

We do not recommend preoperative irradiation in operable lesions. If the breast is found to be operable, we do not believe that it is necessary to give radiation over the operative field. One may give irradiation over the supraclavicular region in such patients as prophylactic procedure as recommended by Portmann.[1]

We do recommend irradiation in inoperable carcinoma of the breast, and the criteria for operability that we adhere to are those recommended by Haagensen and Stout.[2]

Only inoperable recurrences or metastases should be treated by irradiation.

1. Portmann, U. V.: Operability Versus Curability of Cancer of the Breast, Ohio State M. J. **40**: 742-745, 1944.
2. Haagensen, C. D., and Stout, A. P.: Carcinoma of the Breast; Criteria of Operability, Ann. Surg. **118**: 859-870, 1943.

Ovarian irradiation has been demonstrated to be a palliative procedure. It may be given immediately after the radical operation on the breast or it may be deferred until recurrences or metastases develop and or until after other measures have failed. Most patients respond for a short time, and a number will be helped for one to three years.

Every physician who cares for a patient with cancer is obligated to teach the patient what symptoms to look for and how to make a self examination. Our experience has led me to believe that patients can assume an important role in the early recognition of early metastasis, even when they are not told the true nature of their disease.

The relationship of sex hormones and neoplasms has been the stimulus for a great deal of investigation in recent years. The antiandrogenic treatment of cancer of the prostate was introduced by Huggins and Hodges in 1941 [3] and has proved to have definite practical value. Cancer of the prostate is stimulated by androgens and is inhibited by either excision of both testes or by administration of the female sex hormone.

Some of the benefits observed include increased appetite, relief of pain, gain in weight, loss of the anemia, reduction in size of the primary tumor, healing of bone metastases and disappearance of soft tissue metastases. The results are not uniformly successful, but remissions may last from two to five years.

Many clinicians interested in cancer of the breast have employed the male sex hormone in the treatment of extensive breast cancer with bone metastases. Early efforts with small doses were not so valuable,[4] but recently larger doses have been employed with greater benefit.[5] The palliative response included symptomatic loss of pain and increased sense of well-being. In many, the bone metastases heal and occasionally the primary tumor is reduced in size. There still is much work to be done in this field, but the results thus far have been encouraging.

There are many other phases of the problem concerning the role of the radiologist in the care of the cancer patient. Those mentioned serve to illustrate how he can be most helpful if his efforts are integrated with those of the family physician.

3. Huggins, C., and Hodges, C. V.: Studies on Prostatic Cancer: I. The Effect of Castration, of Estrogen and of Androgen Injection on Serum Phosphatases in Metastatic Carcinoma of the Prostate, Cancer Research **1**: 293-297, 1941.
4. Farrow, J. H., and Woodard, H. Q.: The Influence of Androgenic and Estrogenic Substances on the Serum Calcium in Cases of Skeletal Metastases from Mammary Cancer, J. A. M. A. **118**: 339-343 (Jan. 31) 1942.
5. Adair, F. E.: The Use of the Male Sex Hormone in Women with Breast Cancer, Surg., Gynec. & Obst. **84**: 719-722, 1947.

Myasthenia Gravis.—Up to about 1935 the mortality was between 50 and 75 per cent, so its name, "grave myasthenia," was indeed justified. I have estimated that in one hospital where I am working, over a period of thirty years prior to 1935 we had only 30 cases, one a year, and that half of those cases died in the hospital and another half died within a year after leaving the hospital. This was indeed a fatal disease. The mortality from the disease at the present time, however, is probably less than 10 per cent, so that we have reduced the death rate from roughly 50 to 75 per cent down to less than 10 per cent. . . . All our patients take the medicine orally in the form of prostigmine bromide, the only tablet made for oral medication. There are 15 mg. of neostigmine bromide in each tablet. Under certain conditions we may supplement the oral dosage with subcutaneous injection, but that is rarely done, and not more than 2 or 3 per cent of my patients take the drug subcutaneously. They are all adjusted to oral neostigmine bromide.—Viets, Henry R., M.D., *Postgraduate Medicine*, July 1948.

NUTRITIONAL PROBLEMS OF ADOLESCENCE

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Most of the "problems" which bring the average parent of the adolescent to the physician are problems only to the extent that the parent fails to appreciate what normally should be expected at this age, and how wide is the time range within which may take place the events terminating skeletal growth and the attainment of sexual maturity. The mother who is concerned because her daughter is larger or smaller than her companions of the same age seems unaware that chronologic age is no measure at all of the events of this period, but that now there is being forced on us an assessment of normal progress in terms of physiologic age; that each person will have his own inherited time schedule and that his progress in growth must be measured against the yardstick of his sexual maturing. An attempt to compare the growth progress of a schoolroom of 13 year old girls will bring this point home better than anything which I can say. It will be found that their gains in height for the previous year have varied from 1 inch to 4 (2.5 to 10.2 cm.), and in weight from 6 to 30 pounds (2.7 to 13.6 Kg.), and this without there being an abnormal child in the group. It will be noted that about two thirds of the group have just menstruated for the first time, and that half of the remainder will be one, two or three years away from achieving this function, while in the other half of the remainder it will be an equal number of years in the background. When comparisons of growth are limited to girls in the same physiologic age group, seemingly hopeless discrepancies disappear and predictions become possible within relatively narrow ranges.

Such growth problems as do exist, and it is true that they come into bolder relief at this age than at other periods in the growth span, relate to the fact that growth is extremely unstable at this time, the rate actually doubling just preceding and halving just following the menarche in girls, a similar pattern being seen in boys about two years later and being measurable against their attainment of sexual maturity within just as wide a range as the girls. This correlation of the rate of growth with sexual maturity rather than chronologic age is well brought out by Boas [1] and by Shuttleworth,[2] and a recognition of it is fundamental to an understanding of the adolescent.

The actual time of occurrence of the first menstrual period is the source of much needless anxiety, which can be allayed when a mother is made to realize that while 13 is the average for this incident, the range is from 10 to 16. She needs likewise to be reminded that the only predictable thing about the menstrual cycle of the adolescent is its unpredictability for the first two years and that true abnormalities will reflect more often physical and emotional abnormalities of the whole child than those that relate specifically to the sex hormones.

The rate of metabolism at this period shows the same instability as does the rate of growth, a tendency for elevated rates to precede and depressed rates to follow the point of maximum growth. As a by-product of this, hyperthyroidism, rare in earlier childhood, becomes relatively common in the prepuberty spurt of growth, and depressions of metabolism reaching pathologic levels are frequent in the years that immediately follow puberty.

It might be predicted from a study [3] of growth curves that the assimilation from the diet and the storage within the tissues of those food elements that enter into the making of muscle and skeletal tissues—for example, nitrogen in muscle and calcium in bone—would show changes that paralleled the growth rates, as indeed they do. With diet unchanged, retentions of these items have been shown to be halved in the period following puberty in contrast to the period that preceded it, and, further, the requirement for these items is satisfied within much narrower ranges than at those periods of growth that are more stable. During a year when a child is adding 3 inches (7.6 cm.) to his height, his calcium requirement will be satisfied with no less than the amount that occurs in a quart of milk, and his need for vitamin D is probably twice as great as at any other time in life with the possible exception of the middle of the first year. His protein needs likewise are higher than they will ever again be in life, and the attainment of an optimal storage of nitrogen in his tissues and of a normal metabolism will demand about three times as much as that required in adult life. It is true that when such demands are not met equilibrium is reached at a lower level, but only at the expense of a fall in basal metabolism. Beyond a certain point this will result in a failure to achieve sexual maturity.

The protein and calcium needs of the adolescent will be covered when the diet includes the items in the accompanying list:

	Protein, Gm.	Calcium, Gm.
1 quart milk	28.8	1.152
1 egg	6.0	0.033
Cereal, 1 serving, and bread, 3 slices	13.0	0.067
Meat, fish or cheese, 2 large servings	46.0	0.318
Simple dessert, 1 serving containing egg and milk	3.5	0.102
Soup, 1 serving containing milk	2.4	0.020
Vitamin D—800 Units		

The protein in this diet constitutes 15 per cent of a calorically adequate diet. The total calories can be estimated within a narrow range as approximately twice the basal calories as predicted on a Wetzel grid. This method of calculation is actually practiced only on specifically ordered diets such as those for the person with diabetes; in the average normal youngster, we found in the study [4] from which this figure was derived that instinct was a reliable guide to this amount and that a mother's fear that "he would take too much meat" was unjustified. When amounts greater than this were offered, not only was retention of nitrogen not usually increased, but there was prompt refusal and, in some instances, evidence of protein intoxication.

Read in a symposium on the Treatment of Pathologic Disturbances of Adolescence at the interim meeting of the American Medical Association, Cleveland, Jan. 7, 1948.

1. Boas, F.: Studies in Growth, Human Biol. **4**: 307, 1932.

2. Shuttleworth, F. K.: The Adolescent Period: A Graphic and Pictorial Atlas, Monographs of the Society for Research in Child Development, 1938, vol. 3, no. 5.

3. Johnston, J. A.: Factors Influencing Retention of Nitrogen and Calcium in the Growth Period: III. Puberty in the Normal Girl and in the Girl with Minimal Reinfection Tuberculosis, Am. J. Dis. Child. **59**: 287 (Feb.) 1940.

4. Maroney, J. W., and Johnston, J. A.: Caloric and Protein Requirements and Basal Metabolism of Children from Four to Fourteen Years Old, Am. J. Dis. Child. **54**: 29 (July) 1937.

If for any reason milk is not taken, the calcium content of a quart, something over a gram, can be supplied otherwise.

The amount of vitamin D recommended is higher than that usually quoted, but the figure is based on calcium retentions reported elsewhere.[5]

OBESITY

The facts that the average obese adolescent is above average height, shows advanced bone age and is in the advanced group intellectually, though retarded in his social and emotional maturation, are all sound arguments advanced by Bruch[6] against attributing the excess weight to thyroid deficiency. The use of surface area standards in the calculation of the basal metabolic rate introduces an error in the case of the obese child of the magnitude of 20 per cent; the use of a standard based on height, or the Wetzel grid, will provide estimates that fit the clinical picture more accurately; by such standards these children are shown to have a slightly elevated metabolism. The use of thyroid in their management is definitely contraindicated; as much loss of mineral and nitrogen can be effected by elevating the metabolic rate to abnormally high levels as results when the other extreme exists, hypothyroidism. The management of the problem of the obese child includes more than the attempt to limit his caloric intake; it involves an assessment of his emotional and social difficulties and the frank facing of the too frequently found overdependent relationship between parent and child.

1,400 Calories, 20 Per Cent Protein

	Calories
Breakfast	
Tomato juice, one 8 ounce glass	36
Milk, skimmed, one 8 ounce glass	138
Bread (whole wheat, rye, graham, cracked wheat), 1 slice	72
Butter, ½ square	40
Egg, one, or a hamburger or small serving of lean meat	75
Lunch	
Lean meat or fish, any kind, 1 average serving or 2 eggs	172
Vegetables, 3%, any amount	18
Vegetables, 10%, ½ cup	46
Bread, ½ slice	36
Milk, 1 glass	138
Butter, ½ square	40
Fruit, fresh or canned without sugar, 7% to 10%, ½ cup	40
Dinner	
Lean meat or fish, 2 eggs, or average serving cottage cheese	102
Vegetables, 3%, any amount	18
Vegetables, 6%, ½ cup	36
Bread, ½ slice	36
Milk, 1 glass	138
Butter, ½ square	40
Fruit, fresh or canned without sugar, ¾ cup 7% to 10% or ½ cup 15%	60
Mid-afternoon	
Milk, skimmed, 1 glass	138

This diet should be supplemented with vitamin D such as one A.B.D. capsule or 5 drops of percomorph liver oil or a halibut oil with viosterol capsule.

The accompanying reducing diet for the obese child recognizes the need for a high intake of protein, calcium and vitamin D at this period, and stresses the use of protein at the morning meal as a means of allaying hunger for longer periods than would carbohydrate without effecting a corresponding increase in weight.

In the case of obese boys, one of the commonest causes of concern has to do with seemingly infantile genitalia. Bruch[6] concluded from her study on this point that "there are no indications to support the common belief of sexual retardation in obese boys. One may expect that there are a few obese children who do not reach this stage (pubescence of Schonfield); yet they seem to be rare, and they would still fall within the normal range." Actually the size of the penis in the obese boy is deceptive because it is obscured in a pad of pubic fat. The use of sex hormones to influence development at this age is unjustified.

EPIPHYSIOLYSIS

Slipping of the upper femoral epiphysis is largely a problem of the period of accelerated growth, the average age of occurrence in the girl being 12, and the boy, 14.[7] It is likewise a problem to a large extent of the obese child, and the possibility of its occurrence is an added reason for dealing vigorously with that condition before puberty sets in. There is no general agreement on its etiology, but in a study of 5 of these patients we found diminished retention of calcium. Since the studies were done after nailing, the poor balances may well have been referable to the surgical procedure, but their prompt correction by the use of vitamin D differs from the experience of Howard,[8] whose calcium losses in cases of fracture were not so influenced. I feel that observation is added support for the need for vitamin D at this age period, as might be anticipated from the increased rate of growth.

THE ADOLESCENT AND TUBERCULOSIS

The abrupt increase in the incidence of the adult or reinfection type of tuberculosis in the adolescent has long been associated in the physician's mind with some change which lowered resistance at this age. That the lesions found at this time represent endogenous exacerbations of primary foci would seem to be borne out by the experience in Detroit in which 1,100[9] children, wards of the Society of St. Vincent de Paul, were followed for varying periods up to twenty years after their detection as reactors and their removal from their sources of infection to rural foster homes. Two thirds of the 29 reinfections detected over this period occurred in girls, the majority between the ages of 11 and 17. Metabolic observations carried out after the detection of the lesion, and practically all were discovered in the minimal stage, suggested from the magnitude of the storages of nitrogen that deficits had existed which were now being made up with an optimal diet and rest. The role of the onset of puberty itself in creating such deficits was studied and the depressed retentions of nitrogen and calcium noted at the menarche were felt

5. Johnston, J. A.: Factors Influencing Retention of Nitrogen and Calcium in Period of Growth: VI. The Calcium and Vitamin D Requirements of the Older Child, Am. J. Dis. Child. **67**: 265 (April) 1944.

6. Bruch, H. B.: Obesity in Relation to Puberty, J. Pediat. **19**: 365, 1941.

7. Johnston, J. A.: Special Problems of the Adolescent Child, in Nelson, W. E.: Textbook of Pediatrics (Mitchell-Nelson) Philadelphia, W. B. Saunders Company, 1945.

8. Howard, J. E.; Bigham, R. S.; Eisenberg, H.; Wagner, D., and Bailey, E.: Studies on Convalescence: IV. Nitrogen and Mineral Balances During Starvation and Graduated Feeding in Healthy Young Males at Bed Rest, Bull. Johns Hopkins Hosp. **78**: 282, 1946.

9. Johnston, J. A.; Howard, P. J.; Smith, F. J., and Douglas, B. H.: Tuberculin Reactors and Exposure Cases, Am. Rev. Tuberc. **43**: 551, 1940.

to contribute to the reactivation of the lesion, and to its spread when the menarche followed the first appearance of the adult type lesion. The observations lend further support to the need for supplying liberally the increased needs for protein, calcium and vitamin D of this period of accelerated growth.

MENSTRUAL IRREGULARITIES IN ADOLESCENCE

After dismissal of a large number of complaints regarding menstruation as due to a failure to appreciate that, while the average onset of menses is 13, the range is from 10 to 17, and that the establishment of a regular rhythmic cycle is a matter of many months—in one study, twenty-six—there remains a group whose basis can roughly be grouped into the following categories: nutritional, emotional, hormonal and organic defect.

The obese girl and the malnourished share equally in having a disordered menstrual cycle. In both types thyroid has been unwisely employed. Its mistaken use in the obese child has probably resulted, as pointed out elsewhere, from the misleading information gained from the determination of the basal metabolic rate, when this is referred to standards based on the surface area. Malnutrition of any significant degree, not the result of hyperthyroidism or infection, will cause a fall in the metabolic rate; in neither instance is the use of thyroid indicated; the obese child needs dietary restriction, and the supplying of an adequate diet to the undernourished child can cause a rise to a normal rate in two weeks.

Both of these situations may have their basis in emotional difficulties, the obese child using food as a solace for social inadequacies, and the malnourished teen-ager not infrequently developing a state approaching anorexia nervosa when confronted with an inability to keep pace with a school schedule beyond her intellectual capacity.

About one fourth of a group of 50 high school students who complained of menstrual irregularity required thyroid as judged by clinical signs and symptoms, a slow pulse, small pulse pressure, lowered metabolic rate and fatigue, and pallor. Rarely was it necessary to use more than ½ grain (30 mg.). It cannot be stressed too often that the anabolic effects of this hormone become catabolic when amounts are used that elevate the metabolic rate above normal.

Gynecologic consultation in this group should not be too long delayed. Psychic trauma incidental to the examination is not lightly to be dismissed, and the experienced gynecologist has in our experience explored the possibilities mentioned before resorting to it. Nevertheless, a failure to employ adequate examination would have resulted in this series in missing organic lesions in 6 cases—1 of adenomyoma, 2 of ovarian cysts and 2 of hypertrophy and hyperplasia of the endometrium; there was a single instance of primary amenorrhea.

SUMMARY

Adolescence is set apart from the other periods of growth by varying rates of speed, changes in metabolism and the maturation of the sex hormones. Many of its problems can be resolved when the nutritional requirements are met that fulfil these varying needs. More of the problems cease to exist when due account is taken of the wide range of normal of the events of the period.

PSYCHIATRIC PROBLEMS OF ADOLESCENCE

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Commonly encountered problems relating to the emotional and social development of the adolescent will be discussed in this paper. For many young persons, the adolescent period is one in which a relative disequilibrium, physiologic and psychologic, must be coped with. The familiar physical changes of puberty usher in a period in which the relative stability of the prepubescent period is disrupted. Physical growth and development, shift and change in endocrine balance, accompanying change in social and educational relationships conspire to impose a difficult task of adjustment on the adolescent. I shall endeavor to review some of the chief areas in which reactions characteristic for or emphasized by the adolescent are encountered.

PHYSICAL DISABILITY

With respect to problems of physical health, the adolescent is in a vulnerable position. He has little tolerance for the threat of illness or disability; this is particularly true for the boys. Physical disability of any sort is reacted to as a tremendous threat to prestige and in the competitive relationship that characterizes the attitude of the adolescent. Adolescents have a great capacity to deny the existence of any incapacity, since the existence of such provokes deep anxiety. An adolescent boy had required a number of operations on his foot to correct a congenital deformity, had to wear a brace to counteract a tendency toward serious spinal curvature and had an undescended testicle that failed to respond to efforts to effect descent. He devoted his major energy toward denial of his difficulties. One can completely sympathize with his sensitivity and eventual refusal to wear a brace, if there was any chance that this would be discovered by his school friends. He spent endless time and energy in calisthenics and exercise and succeeded in developing a most muscular physique. His emphasis in the direction of physical development was so great that he seemed to have little energy to invest in his academic effort and, though of good intelligence, throughout his high school years has remained on the verge of failure. In his overdetermined zeal to secure himself a robust physique, he has lost sight of the important role that his other capacities play in determining his life situation.

As opposed to the reaction just described, not uncommonly the reverse defensive attitude is encountered. The adolescent who feels himself at a disadvantage on the physical score may stake everything on gaining status through intellectual achievement, perhaps isolate himself as the "grind," but in any event conceive of himself as the intellectual. This fundamental attitude toward himself really includes a great depreciation of his own physical powers. While the emphasis on intellectual achievement may be desirable in itself, particularly if the young person concerned has the capacity to implement his own demands for achievement, the concomitant self depreciation on the physical side tends to maintain an underlying state of anxiety and mistrust of self that interferes with normal adjustment in social and personal relationships.

Like younger children, the adolescent can tolerate no sense of difference between himself and his com-

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rades. Daniels [1] reported the difficulties in management of an adolescent diabetic patient, for whom being left out of group games proved a deep embarrassment and being unable to have an occasional snack with his friends a prime deprivation. To the adolescent, the cure is certainly worse than the disease.

SOMATIC DISTURBANCE

Not only does the adolescent react strongly to physical disability or illness to which he may be subjected, but, conversely, he may manifest mild to extreme somatic disturbance in his effort to cope with the emotionally significant problems characteristic for the adolescent. Disturbance of appetite, common in early childhood, is a not infrequent symptom during adolescence. The problems range from those of the adolescent girl who remains too fat to be attractive (she is the subject of a popular song now being heard daily over the radio) to those of the sufferer with so-called anorexia nervosa, whose life is threatened by inability to eat and retain food. In these adolescents, one is dealing with conflict situations already laid down in childhood experience, but with intensification under the influence of pubertal changes and hormonal stimulus. I wish to comment on some of the psychologic and psychiatric problems involved. The physiologic changes of puberty coincide with changes in external personal relationships involving separation from parental protection, and the impending adjustments of adult social and sexual life.

Some boys and girls tend to overeat and gain weight rapidly with the onset of puberty. I am not talking about the healthy appetite of the energetic boy who eats "like a horse" and expends an enormous amount of energy in active sports and other energetic adolescent pursuits. He does not become obese and socially withdrawn, as does the "fat" boy or girl here referred to. Here one is dealing with the adolescent who is basically anxiety ridden and feels incompetent to enter into the more demanding relationships of adult life. Case studies make clear that in some adolescents overeating occurs as a regressive reaction when heterosexual strivings undergo repression. Such a person reverts to an essentially dependent orientation, expressed in a retreat to oral and receptive possibilities for gratification that are normally dominant only in early childhood. The psychologic picture is a complicated one that cannot here be elaborated, but in turn, the obesity in some measure serves as defense against the possibility of exposure to a mature sexual life.

The opposite picture, the extreme of anorexia nervosa, also expresses an unsuccessful struggle of the adolescent with emotional problems too great for him to cope with. Here again one is dealing with extremely anxious young persons so disturbed that their recourse to illness amounts to a suicidal threat. Again a consistent picture of deeply disturbed familial and childhood relationships is encountered. Neurotic disturbance of one or both parents creates a situation in which the child lacks the security provided by normal parental affection and wise training and guidance. Instead, intense hostile and dependent attitudes are fostered. The female patients rather consistently are involved in threatening pregnancy phantasies and defend themselves against the possibilities of growing to maturity, and specifically against the phantasies of pregnancy, through self starvation. Dr. Ruth Moulton [2] among others has clearly exposed the psychodynamics underlying the illnesses of these young persons.

The treatment of the problems described is primarily a psychotherapeutic task. It may be relatively simple or extremely difficult, depending on such factors as degree of regression and the capacity of parents to cooperate. Often neurotic parents unwittingly interfere seriously with the efforts at therapy, and the patients frequently are highly resistive to efforts to help them abandon the destructive patterns. But many adolescents can accept psychotherapy designed to clarify to them the nature of the basic reactions of anxiety and hostility and are able to reorient themselves in a manner approaching that of the healthy adolescent.

CONFLICT WITH AUTHORITY

A constant concern to parents and educators is the conflict with authority that arises with many adolescents. Adolescents do not like to be told what to do. At the same time they are not always in a position to convince their parents that they are capable of self direction. Parents often remain too mistrustful as to the degree of responsibility and self direction which they may entrust to their adolescent children. This theme has many variations.

The parents of a boy aged 13 complained of his lack of responsibility. He was argumentative, would accept nothing readily from his parents. He argued constantly with his younger brother and with his friends. He was impatient unless his friends would do just what he wanted to do. He did rather poorly in his school work, did not concentrate, "fiddled around." He was rather slender and did poorly in athletics. He whined, acted silly when the mother had company, so that she was ashamed of him and sent him from the room; seemed generally unhappy; spent a great deal of time reading; was unpleasant about family outings; did not even like to accept when the father invited him to go to a motion picture with the father and the younger brother; always felt abused and identified with the underdog.

The picture as seen from the boy's point of view is interesting. Though 13, he had never been allowed to come into town by himself and was accompanied to the office by the mother until she was sure he had learned the way. The boy complained that there was too much arguing with the mother and when he got irritated with her the father chimed in on her side. His father offered to take him to motion pictures and insisted even when there was no picture which the boy cared to go to. He finally went because his father would be angry or the father's feelings would be hurt. His mother insisted that he come in to greet her friends when she had visitors, but she watched him all the time to see how he behaved and he knew that she did not want him to stay. When he decided he would like to have a party, the mother first insisted that he have all the children in his room and it took him two days to convince her that would be too many. Then the mother wanted certain children of her own friends invited, but he knew that they would not have a good time because they went to different schools and "the kids do not know them." Finally he got it down to just one girl that mother insisted on, though he knew that the others would not want her and he did not think that she would have a good time.

These details tend to highlight the familiar conflict between parents still too mistrustful of the child's capacity for self guidance and the relatively insecure adolescent who wants to manage on his own. In actuality, the children of this age need and readily accept considerable guidance, but it must be offered

1. Daniels, G. E.: Present Trends in the Evaluation of Psychic Factors in Diabetes Mellitus, Psychosom. Med. **9**: 205, 1947.

2. Moulton, R.: A Psychosomatic Study of Anorexia Nervosa, Psychosom. Med. **4**: 62, 1942.

in a manner that takes full cognizance of their need to exert their own prerogatives. The disturbed relationship in the case situation described tended to further distinctly unhealthy trends in the character development of the boy. A sullen withdrawal, with exaggeration of resentful, hostile attitudes toward parents and other adults, uncertainty and mistrust about what he himself is capable of doing, the growing conviction that he is always at a disadvantage, tend to become established. The familial conflict may play off in other relationships.

A high school boy of very superior intelligence, who had hitherto given a good account of himself both academically and in his conduct and attitudes in school, was referred for advice because of rapid deterioration in his school work that threatened failure in his senior year, and because of increasing difficulties in his relations with the faculty. His attitude seemed to be that rules were absurd; if there were rules he was an exception and need not conform; they made no sense, etc. It must be remarked that his school was a most liberal one, in which much freedom was given the students. His parents made no complaint about his conduct in the home except that he was most uncommunicative and had to be left strictly alone.

The boy at once took a most superior air with the therapist, began by carefully explaining the absurdities of the rules that got him into difficulty, and questioned the right of the school to impose any restrictions unless he were utterly convinced that they were necessary, etc. He soon shifted his tack, demanded of the therapist whether he had read Wylie's "Generation of Vipers," and expounded a philosophy of life, derived from his particular understanding of this work, that rested on a profound depreciation of the common man and on convictions about the overwhelming significance of an intellectual elite. Factually, this boy's truly superior intellectual capacities do place him at a high level as compared with high school students in general, but the healthy student does not arrive at the orientation expressed by this boy. Further discussions made clear that there was good reason for his cynical attitude. The boy gave an account of a deeply disturbed family life, in which he had much good reason to be anxious and disappointed about his father. Though the father was a professional man who had achieved reasonable success in his field, he was weak and vacillating and betrayed dependent and unrealistic attitudes that deeply disturbed the boy. As his own unfavorable appraisal of his father impressed itself on him, this boy turned against all the adults in his environment and became as critical of and resentful toward his teachers (among whom were a number of men) as he felt toward his father. His overly independent, nonconforming behavior in school followed. His readiness to accept a philosophy of depreciation of most of mankind corresponds with his disillusionments about the authoritarian person in his family. The concept of the intellectual elite who would guide the destinies of mankind reflect a possible solution in which one need not expect much from any one but oneself—and still have life be possible.

ANXIETY STATES

While all the clinical situations referred to involve reactions of mistrust, discomfort and anxiety in adolescents, a word further about anxiety states as such seems in order. Without specific somatic symptoms or disturbances in overt behavior or in the externals of personal relationships, many adolescents exhibit states of anxiety that, at times, seriously threaten their capacity to proceed normally in school work and ordinary routines. When such states of anxiety exist, a careful inspection of the childhood and adolescent experience will usually reveal (*a*) lacks or errors in childhood training or rearing and in child-parent relationships that make it difficult for the child to accept and cope with his situation and (*b*) a recent or current situation that is immediately threatening or overwhelming and that acts as precipitant or augments long-standing discomfort. Examples may be of the following order:

A high school student had always been able to remain on the honor roll, got high grades and had much status on this basis. He was somewhat undersized, but able to participate in sports and athletic activities with some degree of distinction. He drove himself rather mercilessly in this latter activity. He was the only son, in a family in which his anxious mother continued to play a highly overprotective role. With a change in school, the last year in high school, the boy found the work more difficult; he did not do quite as well as he formerly had in a set of examinations, and thereafter became acutely anxious about his school progress. He worried about anticipated examinations to an extent that made it difficult to do any studying at all. About this time, his group of boy friends were paying more attention to social affairs involving the girls, made more dates. He vacillated between going along and feeling that he should spend all his time studying to catch up with his work. In the meantime his mother became greatly concerned about her son's welfare, watched him closely, took him to a number of doctors who found nothing specifically wrong, and this caused more concern. This truly intelligent and capable boy, most dependently attached to an overanxious mother, was able to make a good adjustment as long as it could be on the basis of being the honor student. His general social adjustments were fairly good, though maintained at too great a cost in terms of his overstriving for prestige in sports. His defense against anxiety was successful until a heightened tempo of demand in the school made it difficult for him to maintain his high academic status. With this cornerstone of security shaken, he was ill prepared for the additional demands of blossoming social exposure and the expectation that he cope with the girls, not as his mother's compliant son, but as a more independent young man. This combination of circumstances was sufficient to provoke the state of anxiety that in turn sabotaged his effectiveness in meeting current school and personal situations.

This theme has many variations, and must be understood not only by physicians, but by educators, who must be prepared to recognize and, if possible, offer help to the student so discomfited. Often the break between high school and college is the time at which disturbances of the nature of anxiety reactions are encountered. The educational difficulties which young persons encounter may, to be sure, be primarily of the order of problems of special interests and capacities. Here the task is one of direction and guidance, having in mind the particular fields of learning in which a student may be expected to find the most stimulus and satisfaction. But so often, whatever his special interests and capacities may be, the student may be devoting so much energy to his problems of inner adjustment as to make him relatively ineffective in any field of academic interest. It is this factor of emotional and social maturity or immaturity that is understood in some school settings, given lip service in some and just not comprehended in others.

In academic settings where particular emphasis is placed on acceleration, with the view to telescoping the years of general education, the too exclusive emphasis on the "academic" aspect of the educational experience constitutes a danger to a certain number of the young persons involved. Assuming the intellectual equipment requisite for grasp of the material presented, the intellectual experience may be integrated with socially and emotionally maturing experiences that together constitute a healthy and successful educational experience. By successful, I would mean an increased capacity to understand and cope with his world of experience.

But it is quite possible, with many young persons, that the intellectual experience proceeds in a somewhat isolated fashion. I have already indicated the capacity of adolescents to intellectualize and to use an intellectualizing defense in their inability to cope with the emotionally disturbing aspects of their life relationships. For this reason, adequate progress in intellectual achievement is not in itself a sufficient criterion for success of the educational experience. There needs to be the assurance that in the personally meaningful relationships between student and faculty and student and student the real need of the adolescent is met. The details of this consideration are many and cannot here be discussed; my point is that this important element in the educational provisions for the adolescent is not sufficiently understood. So often the failure of the experience is appreciated only if the student actually fails to make good in his school subjects, because certainly the discomfort of a most intelligent student may reflect itself in academic failure. Failures in the fields of emotional and social orientation are frequently overlooked and more often not understood. They become apparent when the student later runs into actual difficulties in adapting to vocation—to marriage and parenthood.

I do not propose to discuss specifically the question of sexual education of the adolescent. There is no special sexual education of the adolescent, because his sexual education has been in process since earliest childhood. Sexual education is not merely a matter of exposing a child to "the facts of life" at a given age considered appropriate, important indeed as that aspect of education may be. The sexual orientation of the adult is compounded of a synthesis and integration of gradually changing and evolving attitudes and values based on the healthy experience of family life. The experience of being loved and cared for in infancy, and having a live concept of what an adequate mother and father are like, the experience of learning the give and take of family life with brothers and sisters, the experience of being accepted as an adequate boy or girl by the parents, the discovery of the capacity to be successful in meeting ordinary life situations and in adapting oneself to new situations; all of these add up to sexual education. The deficiencies of this earlier life experience tend to be highlighted during adolescence, because the growing boy or girl finds himself more imminently faced with the actual problems of sexual life. For the emotionally healthy boy and girl, the evolving social opportunities of high school and college years can gradually be utilized in achieving the understandings that lead to ultimate courtship and marriage. It is during this period, however, that much preventive work can be done in helping the insecure or emotionally disturbed adolescent. The problems centering about sexual strivings and sexual behavior should be dealt with openly and realistically.

THE GENERAL PROBLEM OF PSYCHOTHERAPY

This leads to a final commentary on the general problem of psychotherapy in adolescence. Any relationship with an adolescent has the possibility of being of therapeutic value. Most young persons are highly sensitive to the personalities, the attitudes of the adults with whom they have contact. Teachers and doctors particularly are in a position to affect the young person profoundly at times. Among educators, the intent is educational, not therapeutic; yet there are situations in which a distinction can hardly be made. The mere acceptance of an adolescent on a fairly adult level by an instructor whom he respects may have a rather positive effect on an insecure adolescent. The willingness of a doctor to review disturbing family or personal situations, free of the complication of familial attitudes toward the adolescent, can similarly be utilized. If the adult is capable of really understanding an unfolding problem exposed to him by an adolescent, the chances are great that the young person can share that understanding, unless he is neurotically seriously disturbed.

Unfortunately, with more serious disturbances, there at times must be a considerable uncovering of uncomfortable and disturbing earlier experience or present attitudes. For this reason, psychotherapy with adolescents offers certain difficulties and dangers. Adolescents, disturbed in their family relationships, are likely to act out their dissatisfaction with the family more freely, for a period during treatment, than ever. Unless parents are fully prepared, they tend to become disturbed by such possibilities and are unable at times to cooperate in treatment. With all patients in psychotherapy, it is important that the physician be quite cognizant of the patient's capacity to tolerate, assimilate and make constructive use of whatever he may be confronted with in the course of therapy. For adolescents, this is particularly important. But if the physician fully understands this factor, and his own relationship to the adolescent and problem, with all except the most disturbed adolescent he finds the ready possibility of helping the patient to a more effective and realistic manner of dealing with his life situation.

PERITONEAL IRRIGATION

Successful Use in the Treatment of a Case of Renal Failure Due to Mercurial Nephrosis

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Use of the peritoneum as a dialyzing membrane in the treatment of uremia following acute renal failure has been under careful investigation recently by Fine and his associates.[1] Their goal has been to provide "a temporary substitute for the normal excretory function of the kidney," and so to prevent deterioration and death from uremia during the period necessary for the repair of acute renal damage. They reported an instance of cure in a case of uremia due to sulfathiazole toxicity.[2] Subsequently, Goodyear and Beard[3] were successful in treating a case of acute renal failure due to a transfusion reaction in a patient with a solitary kidney. Several other successful results are known to us, but have not yet appeared in the literature. To the best of our knowledge this is the first successful application of the method of peritoneal irrigation to a case of renal failure due to mercurial nephrosis.

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1. (*a*) Seligman, A. M.; Frank, H. A., and Fine, J.: Treatment of Experimental Uremia by Means of Peritoneal Irrigation, J. Clin. Investigation **25**: 211 (March) 1946. (*b*) Fine, J.; Frank, H. A., and Seligman, A. M.: Treatment of Acute Renal Failure by Peritoneal Irrigation, Ann. Surg. **124**: 857 (Nov.) 1946.

2. Frank, H. A.; Seligman, A. M., and Fine, J.: Treatment of Uremia After Acute Renal Failure by Peritoneal Irrigation, J. A. M. A. **130**: 703 (March 16) 1946.

3. Goodyear, W. E., and Beard, D. E.: Successful Treatment of Acute Renal Failure by Peritoneal Irrigation, J. A. M. A. **133**: 1203 (April 19) 1947.

TECHNIC

The technic employed was that of Fine, Frank and Seligman,[1b] with several slight modifications. Monobasic sodium phosphate was omitted from the irrigation fluid because of the hyperphosphatemia which usually accompanies uremia.[4]

20 Gm. of sodium bicarbonate was dissolved in 1 liter of distilled water and autoclaved for forty minutes. When both solutions were thoroughly cool, the sodium bicarbonate was added to the carboy to make 20 liters of modified Tyrode's solution. Just prior to use, 10 mg. of the sodium salt of heparin, 1,000,000 units of penicillin and 1 Gm. of streptomycin were added. The remainder of the apparatus was that described by Fine and

TABLE 1.—*Comparison of Peritoneal and Renal Blood Urea Clearances*

	Peritoneal Fluid			Urine				Blood Urea Nitrogen, Mg./100 Cc.	Blood Urea Clearance	
Days	Flow Rate, Cc./Min.	Urea Nitrogen, Mg./100 Cc.	Total Urea, Gm./24 Hr.	Flow Rate, Cc./Min.	Urea Nitrogen, Mg./100 Cc.	NH_3N Mg./100 Cc.	Total Urea, Gm./12 Hr.*		Cc./Min. Peritoneal	Cc./Min. Renal
1	28.0	17.8	15.4	0.021	....	....	....	78.0	6.49	.....
2	15.1	20.4	9.52	0.021	188.0	....	0.12	72.5	4.25	0.055
3	23.5	17.9	13.0	0.052	....	....	0	68.0	6.19	.....
4	24.0	19.7	14.6	0.055	49.2	....	0.08	52.0	9.10	0.052
5	25.6	16.9	13.4	0.151	183.8	....	0.85	41.0	10.55	0.673
6	13.4	29.8	10.3	0.503	67.1	....	1.04	51.5	7.77	0.656
7	....	....	....	0.938	101.0	0	2.91	72.0	....	1.32
8	....	....	....	1.53	135.0	0	6.36	75.0	....	2.76
9	....	....	....	2.36	84.4	0	6.12	75.0	....	2.66
10	....	....	....	2.98	89.4	39.8	11.9	84.5	....	4.55
11	....	....	....	2.32	174.0	11.5	13.3	94.0	....	4.58
12	....	....	....	3.05	153.0	57.1	79.8	83.5	....	7.67
13	....	....	....	3.05	188.2	73.4	24.6	81.5	....	9.80
14	....	....	....	1.49	218.0	58.8	12.7	81.5	....	5.06
15	....	....	....	2.29	209.0	49.0	18.2	73.5	....	5.91
16	....	....	....	2.30	155.0	83.4	16.8	63.5	....	8.64
17	....	....	....	2.29	130.0	84.1	15.1	66.5	....	7.37
18	....	....	....	2.11	137.0	61.4	12.9	67.5	....	6.20
19	....	....	....	1.58	200.0	83.0	13.8	54.0	....	8.27
20	....	....	....	1.94	135.0	95.5	14.4	65.0	....	7.01
21	....	....	....	1.60	187.0	100.0	14.1	70.0	....	6.55
22	....	....	....	1.56	216.0	83.0	14.5	72.0	....	8.52
23	....	....	....	2.82	174.0	33.2	9.9	69.5	....	8.40
24	....	....	....	2.95	....	....	....	45.0	....	.....
25	....	....	....	2.60	50.2	58.5	8.7	49.0	....	5.75
26	....	....	....	2.39	87.3	42.1	9.6	53.0	....	5.84
27	....	....	....	1.97	32.8	41.5	4.5	50.0	....	2.92
28	....	....	....	2.78	40.3	41.5	7.0	48.5	....	4.78
29	....	....	....	2.78	235.0	93.8	29.9	40.0	....	17.3
30	....	....	....	3.26	87.0	73.4	16.1	28.0	....	10.5
31	....	....	....	3.56	89.5	9.4	10.9	35.0	....	9.1
32	....	....	....	3.71	82.3	9.5	10.4	37.0	....	8.2

* This includes urea nitrogen in form of ammonia.

TABLE 2.—*Blood Chemistry Determinations During and Following Peritoneal Irrigation*

Day	Blood Urea Nitrogen, Mg./100 Cc.	Nonprotein Nitrogen, Mg./100 Cc.	Creatinine, Mg./100 Cc.	Calcium, Mg./100 Cc.	PO_4, Mg./100 Cc.	CO_2 Combining Power, Vol. %	Chlorides (as NaCl), Mg./100 Cc.	Total Serum Proteins, Gm./100 Cc.	Serum Albumin, Gm./100 Cc.	Hemoglobin, Gm./100 Cc.
1	78.0	.....	...	10.7	6.5	34.7	430.0	...	...	....
2	73.0	107.0	...	8.8	5.4	35.5	460.0	...	...	....
3	68.0	94.0	...	8.8	4.6	34.3	520.0	4.8	2.9	....
4	....	72.0	5.0	9.4	4.1	43.8	490.0	...	...	11.2
5	41.0	.....	5.8	9.1	6.2	42.8	.....	...	...	....
6	51.5	.....	...	8.6	6.9	36.2	490.0	...	...	....
7	72.0	.....	...	...	...	....	.....	5.5	3.3	10.3
8	75.0	98.0	9.5	...	...	36.2	485.0	...	...	....
9	75.0	113.0	9.5	...	...	42.8	470.0	5.8	3.4	....
10	85.0	108.0	8.9	...	...	39.3	.....	6.0	...	....
11	94.0	.....	8.5	...	...	41.9	485.0	5.4	...	8.4
12	84.0	.....	...	...	...	44.9	525.0	5.6	...	....
13	82.0	.....	...	...	...	47.0	404.0	...	...	....
14	82.0	104.0	8.5	...	...	43.8	480.0	...	...	10.6
15	74.0	98.0	...	...	...	40.9	.....	6.6	6.6	....
16	64.0	.....	...	...	...	42.8	480.0	...	...	....
17	67.0	96.0	...	...	...	....	.....	...	...	....
18	68.0	98.0	...	...	...	50.4	460.0	...	...	....
19	54.0	.....	...	...	...	....	.....	...	...	....
20	65.0	.....	...	...	...	.....	.....	...	...	....
21	70.0	100.0	...	...	...	48.5	520.0	...	...	....
22	72.0	95.0	...	...	...	....	.....	...	...	....
23	69.5	100.0	...	...	...	49.4	480.0	...	...	....
24	45.0	.....	3.2	...	...	....	.....	...	...	....
25	....	.....	...	...	...	.....	.....	...	...	....
26	53.0	.....	...	...	...	50.4	.....	...	...	....
27	....	.....	...	...	...	....	.....	...	...	....
28	48.5	.....	...	...	...	49.5	.....	...	...	....
29	....	.....	...	...	...	....	.....	...	...	....
30	28.0	.....	...	...	...	50.4	.....	...	...	....
31	....	.....	...	...	...	....	.....	...	...	....
32	37.5	.....	...	...	...	....	.....	...	...	....

To 19 liters of freshly distilled water in a "pyrex" carboy the following anhydrous substances were added: sodium chloride, 160 Gm.; potassium chloride, 4 Gm.; calcium chloride, 2 Gm.; magnesium chloride, 2 Gm., and dextrose, 30 Gm. The carboy was then autoclaved for ninety minutes and allowed to cool for five or six hours. Simultaneously, in a 2 liter flask,

4. Seligman, A. M.: Personal communication to the authors.

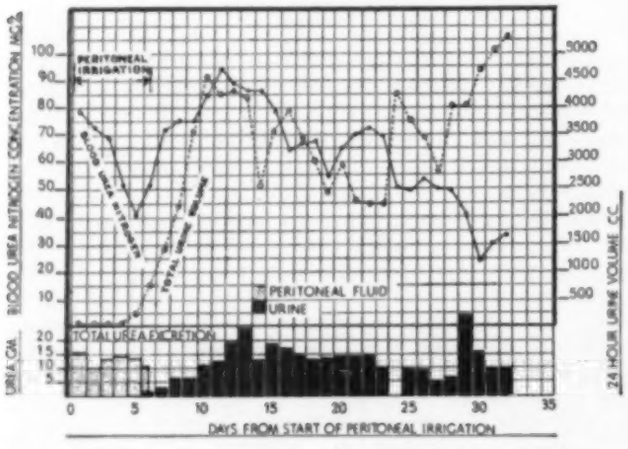
associates.[1b] A rubber catheter was inserted through a short paracostal incision high in the right flank to function as the inlet tube, while a stainless steel sump drain was placed into the cul de sac through a McBurney incision in the left lower quadrant for use as the outflow tube. It was connected to a suction motor, regulated by a water trap to supply suction at a negative pressure of about 12 inches (30.5 cc.) of water.

Insertion of both tubes was accomplished in the operating room with the patient under local anesthesia.

The rate of flow was kept at about 2,500 cc. per hour for one day, after which a kink in the inflow catheter and clogging of the Mandler filter slowed down the flow to about 1,500 cc. per hour. The patient was comfortable in a slight Fowler's position and experienced no pain throughout six days of irrigation. Collateral chemotherapy consisted of penicillin 50,000 units every three hours intramuscularly and streptomycin 333 mg. every four hours by mouth for twelve days.

REPORT OF A CASE

The patient was a white bipara aged 32, transferred to the service of one of us (J. W. H.) from her community hospital with a history of having swallowed at least 4 tablets (2 Gm.) of bichloride of mercury about seventy-eight hours previously, in an attempted suicide. It was stated that the patient had experienced a small bloody emesis about fifteen to twenty minutes thereafter. Gastric lavage was carried out about one hour after the mercurial compound was taken. Peripheral vascular collapse had been treated with prompt transfusions of plasma and blood. BAL (2,3 dimercaptopropanol) was rushed to the patient from a neighboring city, but over four and one-half hours elapsed before the first dose could be administered. She received a total of 1,900 mg. of this drug intramuscularly over a sixty-six hour period. During this time the patient had a severe and persistent bloody diarrhea. Parenteral fluid therapy was given daily but the patient was stated to have been completely anuric from the time the poison was taken until she came under our observation three days later.



Showing blood urea nitrogen, total volume of urine and total excretion of urea.

On admission to the New York Post-Graduate Hospital the patient was alert and oriented but uncooperative and depressed, with evidences of a psychotic mental disorder. Heart and lungs were clear. The abdomen was soft and not tender. The temperature was 99.4 F., pulse rate 128, respiration rate 24 and blood pressure 132 systolic and 90 diastolic. The red blood cell count was 4,120,000; hemoglobin 13.0 Gm.; white cell count 16,150, of which 84 per cent were polymorphonuclear cells. The nonprotein nitrogen was 106 mg. per hundred cubic centimeters, while the blood urea nitrogen was 75 mg. per hundred cubic centimeters.

Shortly after admission and about eighty hours after the ingestion of poison, peritoneal irrigation was begun. During the first two days of irrigation the patient passed about 30 cc. of grossly bloody urine each day. This was accompanied by a severe bloody diarrhea. On the first day a 500 cc. blood transfusion and 1,000 cc. of 10 per cent dextrose in water with large amounts of vitamins B and C were administered. A moderately severe ulcerative stomatitis developed, which did not prevent the patient from eating. The stomatitis slowly responded to local treatment. The patient was kept on a full soft diet with carbohydrate supplements in the form of sweet drinks and hard sugar candy, which she took fairly well throughout the period of irrigation.

In an attempt to correct acidosis, on the second day 1,000 cc. of one-sixth molar sodium lactate was given intravenously with no improvement in the carbon dioxide-combining power (table 2). Therefore, on the third day, 22.5 Gm. of sodium bicarbonate in 1,000 cc. of 10 per cent dextrose in water was administered intravenously, very slowly. Subsequently, there was definite improvement of the acidosis. On the second hospital day a significant amount of fluid began to leak around the outflow tube. This persisted to some extent throughout the remainder of the treatment.

Four days after the onset of irrigation, pronounced pitting edema was noted in the dependent portions of the body. Five hundred cubic centimeters of plasma was given in an attempt to ameliorate the severe hypoproteinemia. Digitalization was accomplished with 1.2 mg. of digitoxin divided into two oral doses. Despite the presence of edema, 10 Gm. of sodium bicarbonate were administered by mouth to control acidosis. At the same time the patient began menstruating. Since it became difficult accurately to ascertain the urinary output, an indwelling Foley catheter was inserted at the start of the fifth day. At this time the urine output increased to 217 cc., although the specific gravity and urea concentration remained low. In an attempt to remove some of the edema fluid via the peritoneal route, the irrigating fluid was modified slightly and 1 per cent gelatin was added, while simultaneously 30 Gm. of salt-poor human serum albumin was given intravenously on the fifth day with only slight success. The lungs remained essentially clear to auscultation at all times.

At the end of five and one-half days of irrigation (eight and one-half days after ingestion of poison), the output of urine had increased to 725 cc. and the blood urea nitrogen had been reduced to 51.5 mg. per hundred cubic centimeters. Peritoneal irrigation was then discontinued. The red blood cell count at this time had declined to 3,400,000; the hemoglobin to 10.3 Gm.; the white cell count was 15,050. The patient's temperature had never exceeded 100.6 F. Although there was moderate abdominal distention on the fifth and sixth days, it never became a serious problem, nor was there ever any clinical evidence of peritonitis. The patient's stools had been brown in color since the third day but were extremely soft; no further gross blood was noted, although tests for occult blood were positive for several days. Cultures of the outflow fluid were made each day, and remained sterile until the last day of irrigation, when Escherichia coli and nonhemolytic streptococci were found.

After cessation of peritoneal dialysis, the blood urea level rose for five days despite the large volumes of urine which were excreted (the figure). Clinically, however, there was improvement, and the patient was out of bed on the eighth day after admission. Because the kidneys were as yet apparently unable efficiently to conserve base, the patient's carbon dioxide-combining power fell to 36.2 volumes per cent on the eighth day. This state of acidosis successfully was counteracted by administration of 1,000 cc. of one-sixth molar sodium lactate intravenously. Thereafter, acidosis never became a serious problem, although the urine continued to be alkaline in reaction throughout the patient's hospitalization. The specific gravity varied from 1.006 to 1.010 and there was a faint trace of albumin during this entire period. No glycosuria, hematuria or pyuria was noted during the period of recovery.

Digitoxin was discontinued on the ninth hospital day. From the ninth through the thirteenth day the patient's urinary output far exceeded the total fluid intake and her edema entirely disappeared. Blood transfusions of 500 cc. each were given on the twelfth and the thirteenth day because of a decline in the red blood cell count to 2,600,000.

In view of the steadily rising blood urea nitrogen level, an attempt was made to reduce the quantity of nitrogenous excretory end products by reducing the dietary protein to 40 to 50 Gm. daily after the twelfth day. Three hundred grams of

carbohydrate was given daily to achieve as much of a "protein-sparing" effect as possible. By the fifteenth day after the start of peritoneal dialysis, the concentration of urea nitrogen in the blood began a slow but progressive decline. On the thirty-third hospital day, the patient was transferred to a mental hospital because of the urgent need of intensive psychotherapy. The renal function was still poor with the urea clearance averaging only 10 to 15 per cent. of normal.

COMMENT

Although this patient on admission was not moribund and did not exhibit the signs of severe uremic intoxication, it was evident that the prognosis was poor, despite the use of BAL. If BAL is to achieve optimal results in preventing renal and gastrointestinal protoplasmic destruction, it must be administered within three and one-half hours of the ingestion of bichloride of mercury.[5] In this case BAL was not available for four and one-half hours and failed to prevent profound renal damage.

Anuria of twenty-four hours' duration or more was noted by Hull and Monte[6] in 40 cases of mercurial poisoning. This occurrence carried with it a mortality of 92.5 per cent. If the anuria persisted for three days, the mortality in their series was 100 per cent. In this case anuria was present for over three days, and severe oliguria for four days more. A blood creatinine level of 5 mg. per hundred cubic centimeters was likewise considered of poor prognostic import by these authors. This patient's creatinine rose to a height of 9.5 mg. per hundred cubic centimeters two days after peritoneal dialysis was discontinued, probably a reflection of widespread tissue protein destruction by the mercurial, as well as failure of the damaged tubules to excrete creatinine.

On the other hand, tubular regeneration has been noted as early as three days after the onset of mercurial nephrosis,[7] provided that the patient does not succumb in the meantime to the effects of uremia. For this reason, and also because the patient was still in fairly good physical condition, it was considered that this was an ideal case for peritoneal irrigation. The patient was never comatose or delirious and was able to take a full soft diet by mouth. It was not necessary to restrict the protein intake during irrigation, because of the efficiency of the peritoneal dialyzer in removing the nitrogenous end products of protein metabolism, although after cessation of dialysis, protein restriction was considered necessary so far as the blood urea nitrogen concentration was rising.

The method employed succeeded in removing more than 75 Gm. of urea over the five and one-half day period of operation. The quantity of urea actually removed was probably much greater than this but could not be measured because of the considerable leakage of fluid around the outflow tube. Based on the material collected and analyzed, the daily urea excretion and urea clearances are given in table 1.

We are able to confirm the findings of Fine and his group[8] that peritoneal irrigation can serve as a satisfactory temporary extrarenal pathway of elimination of urea and the other excretory products whose accumulation in the body fluids leads to uremia and death. It is considered that the urea clearances achieved by the peritoneal dialysis in this case could have been increased by running in the fluid at a more rapid rate of flow. It should be noted that promptly after discontinuing irrigation the blood urea level rose from 51.5 to 72 mg. per hundred cubic centimeters and eventually to 94 mg. despite urine output volumes as high as 4,500 cc. per day. One factor contributing to this elevation of blood urea nitrogen was the presence of considerable edema fluid which probably served as a temporary "reservoir" of urea, and similar diffusible excretory products with which the poorly functioning renal tubules were forced to contend. Probably the most important factor in this case, of course, was the persistence of tubular damage with fixed urinary specific gravity and low urine urea concentration.

The most serious difficulty encountered in the management of this case was the treatment of acidosis in the presence of hypoproteinemia and pronounced dependent edema. Despite the danger of pulmonary edema, the patient was treated with intravenous or oral sodium bicarbonate whenever a low carbon dioxide-combining power seemed to warrant such treatment. It was noted that intravenous sodium lactate therapy was not successful in combating acidosis while the peritoneum was being irrigated, although it served its purpose well after irrigation was discontinued. The reason probably was that the lactate diffused out into the peritoneal fluid before the body had an opportunity to metabolize it. Sodium bicarbonate was effective during the irrigation because the irrigating fluid contained the bicarbonate ion, thus preventing great losses by this route. It is felt that further investigational work needs to be carried out before control of both edema and acidosis may be achieved by altering the irrigating fluid to fit each case individually. However, as presently constituted, the irrigation fluid was effective in keeping the blood chloride and calcium concentrations at normal levels in this case.

Finally, it is important to emphasize that this method is a formidable one and should be used only in cases in which a fatal result by conservative treatment seems beyond reasonable doubt. The great danger, of course, is the development of peritonitis.[9] E. coli were cultured from the outflow fluid in 3 of the 4 cases reported by Fine, Frank and Seligman,[9b] although clinical peritonitis did not occur. In this patient, E. coli and nonhemolytic streptococci were cultured on the last day of irrigation. The frequent occurrence of E. coli would indicate that the origin of the peritoneal contamination is probably due to migration of organisms through the wall of the intestinal tract. Severe distention and ileus may enhance such migration. We have attempted to counteract this source of peritoneal contamination by giving streptomycin orally, but cannot determine on the basis of this experience alone whether the procedure was of value. It has been pointed out that prophylactic use of streptomycin in the irrigating fluid leads to the rapid development of resistance to the drug on the part of the organisms.[9a] The problem of peritonitis constitutes the most serious limiting factor in the use of peritoneal dialysis as a clinical therapeutic method.

5. Longcope, W. T., and Luetscher, J. A., Jr.: Clinical Uses of 2,3,-Dimercaptopropanol (BAL): The Treatment of Acute Mercury Poisoning by BAL, J. Clin. Investigation **25**: 557 (July) 1946.

6. Hull, E., and Monte, L. A.: Bichloride of Mercury Poisoning: A Statistical Study of Three Hundred and Two Cases, South. M. J. **27**: 918 (Nov.) 1934.

7. Fishberg, A. M.: Hypertension and Nephritis, ed. 3, Philadelphia, Lea & Febiger, 1934.

8. Footnotes 1 and 2.

9. (*a*) Fine, J.: Peritoneal Dialysis, Lancet **1**: 120 (Jan. 18) 1947. (*b*) Fine, J.; Frank, H. A., and Seligman, A. M.: Peritoneal Dialysis, ibid. **1**: 577 (April 26) 1947.

CONCLUSION

Peritoneal irrigation has been successfully applied to the prevention of uremia in a patient with anuria due to mercurial nephrosis.

NOTE.—Seven months postoperatively the patient still had intermittent mild azotemia, with 20 to 30 mg. of urea nitrogen and 2 to 3.5 mg. of creatinine. Ten months postoperatively the chemical content of the blood was normal. She had returned to her home from a psychiatric hospital following treatment, and she was carrying on her household duties with no apparent physical or mental difficulty.

ARTIFICIAL KIDNEY

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assisted by
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and
NEWELL THOMAS
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It is impressed on every physician occasionally and on some ill fated patients at short intervals that renal function is a vital one. The sudden onset of acute anuria following blood transfusion, the acute toxemias of pregnancy and otherwise, following certain poisonings or the administration of sulfonamide drugs, etc., sets off an alert in the attending physician. With reasonable luck, many of these patients will recover function within a few hours or days, when the "stand easy" signal arrives, with great relief to the physician. However, if such fortuitous circumstances do not establish themselves, after the fifth or sixth day of anuria the physician is faced with an ominous set of circumstances over which he has little control. There are the average and orthodox methods of treatment, but, by and large, these have relatively little effect in changing the course of events which are indicated by the acute anuria. At this stage the physician in attendance invariably questions himself whether there is not some way of escape from the fatality which must ensue if the anuria persists. Time and again physicians have asked themselves, if some artificial kidney could be applied at this stage, what an important change it might make in the course of the individual patient.[1]

It was with great satisfaction, therefore, after many years' work on attempting to replace renal function by artificial means, that we were able to produce a machine (fig. 1) which will reproduce the function of the kidney, will reduce the nonprotein nitrogen substances in the blood stream and tissue fluids as well as the fixed cells themselves and remove many, if not all, the toxic substances that cause the fatal result in the cases of anuria. Obviously this machine can function only as a temporary measure. It was assumed, however, if the patient could be prevented from dying of toxemia, that eventually the kidney, in the cases of acute disease, might be given time to repair itself sufficiently that it might begin to take over, and finally restore natural renal function. Experimentally with uremic animals we were able to provide this effect, and in patients as well the toxemias have been reduced so that unquestionably several patients have survived following treatment with this machine who otherwise were doomed to nonsurvival from a state of acute uremia from anuria.

My original efforts in this direction were in an attempt to transplant kidneys from one animal to another in the same species, then from one species to another. It was demonstrated about fifteen years ago [2] that the renal function could be taken over by a transplanted kidney and that an animal with his own kidneys removed could live for a time on the function of the transplanted kidney. At a later stage different methods of attempting to dialyze the blood of the uremic animal were made, and it was finally with satisfaction that we were able to use a cellulose membrane with the proper apertures so that the crystaloids, the nonprotein nitrogen substances and toxic substances would escape whereas the large molecules, such as proteins, hormones such as pituitrin, epinephrine, insulin and heparin,

Fig. 1.—Photograph of artificial kidney in use on a patient.

would not escape (table 1). The problems in this work came under the following headings:

1. A method of removing the blood for dialysis, then returning it to the subject presented the first problem. Many experiments were done and many methods used; we began by using arterial blood with arterial blood pressure as the circulating pressure, then returning it through the venous system. Finally, however, the present method, which is satisfactory and has worked rather well in clinical patients, has been to remove the blood from the inferior vena cava and return it through the opposite iliac vein. By this method a sufficient flow of blood can be obtained without obstruction and there is no ill effect either on the experimental animal or on the patient.

2. The method causing this blood to circulate was experimented with. The first efforts were by removal of volumes of blood from the subject, dialyzing it and then returning it as a separate transfusion; this worked satisfactorily but it was laborious and was too slow in its operation. For that reason a method of continuous circulation of the blood through a tube seemed to be ideal and when ultimately developed worked satisfactorily. At the present time an efficient pump for

Prof. H. B. Van Wyke, Prof. J. McClelland and Dr. W. G. Cosbie provided the patients whose records of treatment are reported. Laboratory space and some chemicals were furnished by Prof. Andrew Hunter, of the Department of Pathological Chemistry. The Department of Experimental Research provided experimental animals and space in which to work.

1. Abel, J. J.; Rowntree, L. G., and Turner, B. B.: On the Removal of Diffusible Substances from the Circulating Blood by Means of Dialysis, Tr. A. Am. Physicians **28**: 51, 1913; J. Pharmacol. & Exper. Therap. **5**: 275 and 611, 1913-1914. Thalhimer, W.: Artificial Kidney and Experimental Exchange Transfusion for Reducing Azotemia, Proc. Soc. Exper. Biol. & Med. **37**: 641, 1938. Murray, G. D. W.: Heparin in Thrombosis and Blood Vessel Surgery, Surg., Gynec. & Obst. **72**: 340, 1941. Kolff, W. J.: The Artificial Kidney, Kampen, Holland, J. H. Kok N. V., 1946.

2. Murray, G. D. W.: Heparin in Thrombosis and Embolism, Brit. J. Surg. **27**: 567, 1940.

causing this circulation, removing the blood from the vena cava, circulating it through the apparatus and then returning it, is a satisfactory method. It will continue to function for hours on end without difficulty and, provided the blood in the apparatus as well as that in the subject being treated is adequately heparinized, there are no difficulties whatever.

3. The next problem was one of dialyzing the membrane to produce the desired effect and not to produce any untoward effect. It was demonstrated early in the work that if such a membrane was surrounded only by tap water the experimental animal quickly showed ill effects from the procedure. There were pronounced ill effects on respiration and blood pressure, and within ten to fifteen minutes the animal succumbed from loss, or addition to, his circulation of important substances. However, it was found that provision of sodium chloride solution as the bath surrounding the dialyzing membrane caused some improvement, and finally by the addition of various substances, including the list in table 2, the dialysis could be carried on for hours or

TABLE 1.—*Showing Changes in Nonprotein Nitrogen in Blood of Dog During Two Hours' Perfusion by Artificial Kidney*

	Blood Nonprotein Nitrogen Mg./100 Cc.	Plasma Content, Mg./100 Cc.
Blood, after 20 minutes' perfusion, going into apparatus	39.5	410
15 Gm. urea in saline solution added; blood, after 80 minutes, going into apparatus	156.2	415
Blood, after 80 minutes, coming out of apparatus	122.6	439
Blood, after 2 hours, going into apparatus	98.0	442
Blood, after 2 hours, coming out of apparatus	82.4	442

TABLE 2.—*Formula to Make 18 Liters of Perfusion Fluid*

Ingredient	Amount, Gm.
Sodium chloride	144
Calcium chloride	1.8
Magnesium chloride	1.8
Sodium phosphate	0.9
Dextrose	27.0
Potassium chloride	3.6
Sodium carbonate	18.0

days without causing any ill effect in the animal or on the patient clinically. It was found that the crystaloids, sugar and water escaped rapidly through the membrane. By adequate buffering of these substances in the surrounding bath or dialysate, it was possible to prevent any ill effect.

The diagram (fig. 2) shows the simple principles of this machine as it works in action. It was discovered by doing estimations of nonprotein nitrogen on the dialysate that the nonprotein nitrogen substances escaped fairly rapidly though the dialyzing membrane and their accumulation in the dialysate slowed up the rate of dialysis. By changing the dialysate at short intervals the rate of dialysis is kept at a relatively high speed. It was demonstrated that with a length of about 35 feet (10.7 meters) of this tubing about 0.75 Gm. of nonprotein nitrogen substances will pass through this membrane each hour. The result of this on the uremic animal or on the clinical patient was striking. From a state of uremia, the subject returned to a state of more normal health.

With this apparatus it was possible to fractionate the blood of a toxic animal or patient, and it gave an opportunity for study of the substances which were causing the toxemia. We have demonstrated experimentally that, if an animal was given an injection intravenously of urea which raised the level at least five times above that of the level of an animal dying of uremia, it caused little ill effects. With the machine working, the urea could be removed again without difficulty (table 1).

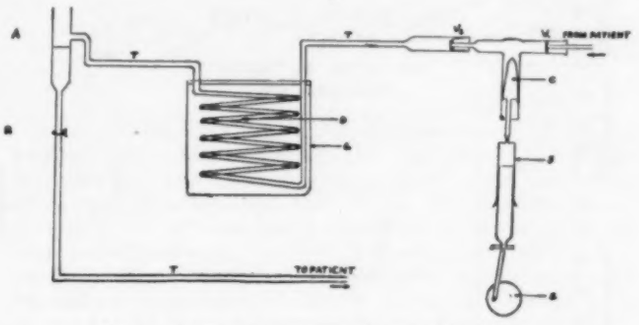

Fig. 2.—Schematic diagram of artificial kidney.

This suggests that the substance causing the disease and illness of the patient in uremia is not the nonprotein nitrogen substances but is comprised of other substances which are removed by this membrane.

Experimentally we have demonstrated that when an animal is having a deficiency of oxygen, produced in various ways, a fairly large quantity of oxygen can be supplied by this machine. Moreover, the blood stream of the animal could be supplied with almost any desired quantity of sugar or other crystaloids by addition of these substances to the dialysate, but this requires a great deal more investigation. There was some evidence to suggest that by use of this apparatus various types of medication and treatment might be given for various conditions such as traumatic shock or following severe burns.

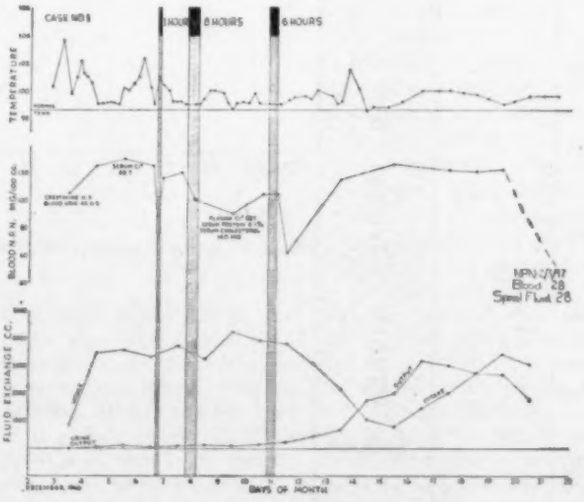

Fig. 3.—Showing the effects of dialysis in a uremic patient.

While we have treated several clinical patients with this apparatus, there are 3 cases in particular which are reported herewith to illustrate the function and effect of this apparatus.

REPORT OF CASES

CASE 1.—The patient was 26 years of age. After an attempt at inducing abortion, acute anuria developed. The patient was seen on the ninth day, after treatment by the physicans, the gynecologists and the genitourinary surgeons had been discontinued because it was thought that the patient had no hope of

surviving. Professor Van Wyck enabled us to see this patient. At that time she had pronounced uremia. She was semicomitose and having minor uremic convulsions. She was secreting from 4 to 30 cc. of urine only, in twenty-four hours, and chemical analysis of the blood (fig. 3) showed uremia.

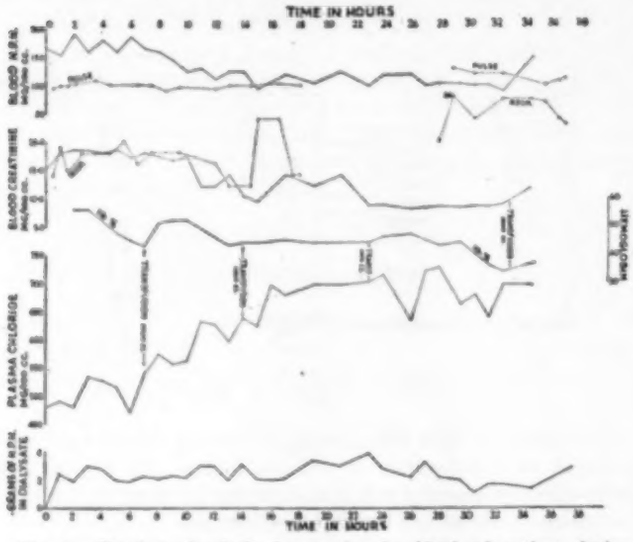

Fig. 4.—Showing chemical changes in the blood of patient during dialysis over a period of thirty-six hours, with removal of 72 Gm. of nonprotein nitrogen

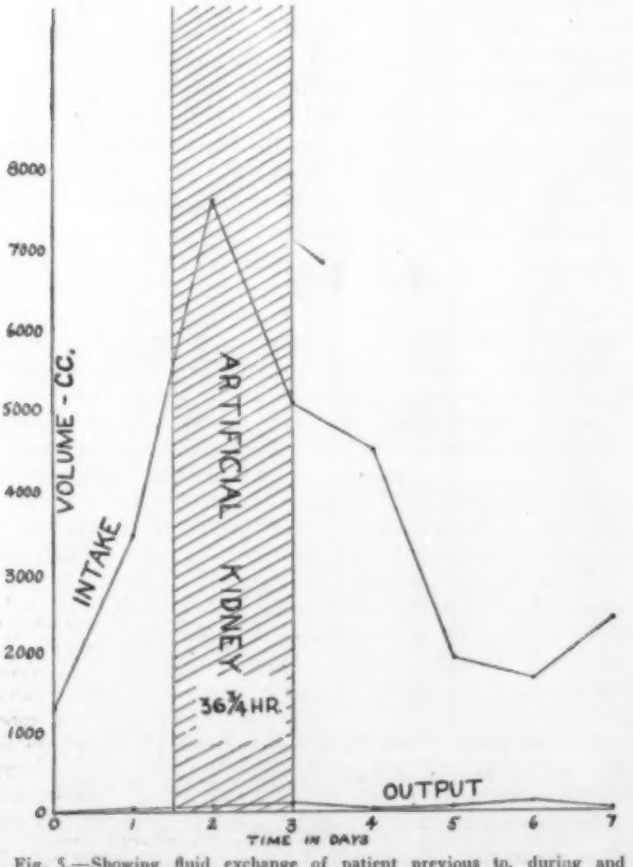

Fig. 5.—Showing fluid exchange of patient previous to, during and following treatment with the artificial kidney (case 2).

Even though the situation seemed hopeless, it was decided to attempt dialysis with this artificial kidney. Cannulas were placed through the iliac vein on one side reaching into the inferior vena cava, from which the blood was removed. It was circulated through the machine and passed into the iliac vein on the opposite side. The patient was heparinized and the blood entering the machine was heavily heparinized. The first run was carried on for one hour, during which 330 mg. of nonprotein nitrogen substances was removed, on estimations done on the dialysate. At this time the patient had a chill and the operation was discontinued. The patient was considerably improved after this. However, forty-eight hours later she had relapsed again and was in a comatose condition. Another dialysis, started at this time, was carried on for eight hours. During this time 6.6 Gm. of nonprotein nitrogen substances was removed, and as a result of this the patient's condition was changed in an amazing fashion. She had become rational, had normal responses and would drink some fluids; everything seemed to be improved. However, there was still no secretion of urine beyond the few cubic centimeters each twenty-four hours. Following the next forty-eight hours the patient was again back in the condition of extreme uremia, and another run of seven hours was undertaken with the artificial kidney. Again the patient's general condition was greatly improved. She was again rational, and things were well on the mend. The day following discontinuation of this run, the patient began to secrete urine; on the day following that, she secreted 4,000 cc.,

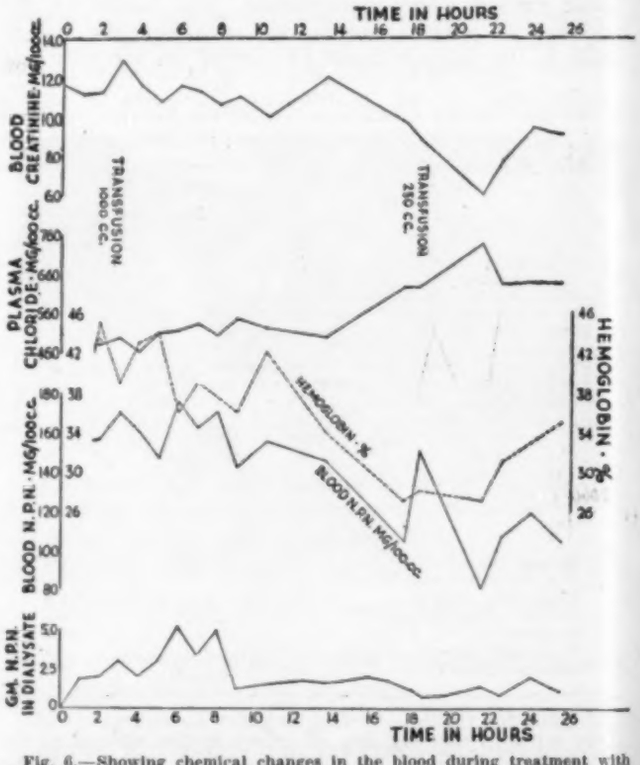

Fig. 6.—Showing chemical changes in the blood during treatment with the artificial kidney (case 3). Total amount of nonprotein nitrogen removed in twenty-five and one-half hours was 49.4 Gm.

and from then on she made a continuous and rapid recovery. Nonprotein nitrogen in the blood was followed, as well as in the cerebrospinal fluid and in the ascitic fluid in the peritoneal cavity throughout the investigation. It was demonstrated that nonprotein nitrogen in the blood, the spinal fluid and the ascitic fluid diminished rapidly; finally the ascitic fluid disappeared and no further estimations were possible here. Within about one month of the time that the patient was in acute uremia, she was in perfect health and was able to return to work at a clerical job. The last renal function to regain its normal level was that of concentration of urine. At the end of a month she could concentrate on a water two hour test only up to a specific gravity of 1.016. However, at the end of two months the concentration was up to 1.022 and as time progressed beyond this the concentration reached a higher level still. At the present time no abnormality is noted in the urine, the blood pressure or the patient generally.

Case 2.—Opportunity to see Mrs. C., age 37, was provided by Dr. J. McClelland. This patient had bilateral renal calculi, of which the left had been removed about one year previously. Eight weeks previously she gave birth to a normal child and

had no renal complications during or following pregnancy. Fairly suddenly she began to have oliguria, and it is uncertain whether a recent infection of the upper respiratory tract might have been a cause for this.

On admission to the hospital the patient was in poor condition. She had a period of about twelve hours when there was no blood pressure to be demonstrated, no pulse and a severe heart block with a rate of 18 per minute. After suitable medication, the blood pressure rose to 150 systolic and 86 diastolic, but the patient did not regain consciousness, and urinary secretion was only a few cubic centimeters.

After much hesitation because of the poor condition of the patient and the uncertainty regarding the state of the chronic lesion of the kidneys, a decision was made to attempt a dialysis on the artificial kidney.

A successful run, lasting thirty-six hours continuously, was carried out. Fifty-two feet (15.8 meters) of tubing was used. During this time 72 Gm. of nonprotein nitrogen was removed and the charts show the effect on the chemical composition of the blood. In spite of this, the patient did not regain consciousness. It was thought that perhaps the prolonged period (twelve hours) of absence of blood pressure might have caused permanent injury to cerebral cortex. In spite of this, the patient lived seven days; the output of urine during that time is shown in figure 5.

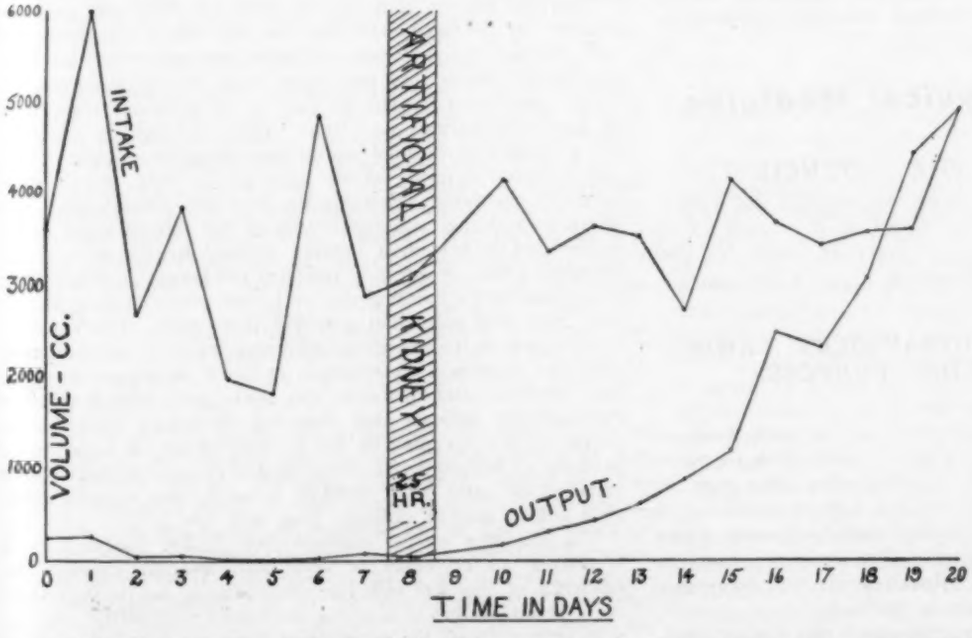

Fig. 7.—Showing fluid balance previous to, during and following treatment with the artificial kidney. The shaded area represents the time of dialysis.

CASE 3.—Opportunity to see Mrs. McL., aged 40, was provided by Dr. J. Cosbie.

After caesarean section when a blood transfusion was given, the patient showed oliguria, the urine contained hemoglobin and hematin. She passed only 3 to 5 cc. of urine daily for eight days, at which time the blood nonprotein nitrogen was 0.179 mg. and the patient was showing signs of uremia.

She was then treated for twenty-six hours in the artificial kidney. Fifty-four feet (16.4 meters) of tubing (fig. 6) was used, and 49.4 Gm. of nonprotein nitrogen was removed from the blood. The following day the urinary secretion increased to 210 cc.; the daily increase, up to 5,730 cc. on the twelfth day, is indicated on the chart. The patient gradually improved clinically and has made an excellent recovery. Renal function has returned to normal and the patient is in normal health.

CONCLUSIONS

A method of dialyzing a patient's blood for removing of nonprotein nitrogen as well as toxic substances has been produced which functions satisfactorily and can be used safely.

Clinical Notes, Suggestions and New Instruments

STREPTOMYCIN THERAPY

Effects on Fetus

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Two patients, both in the second trimester of pregnancy, received 2 Gm. of streptomycin (0.4 Gm. five times per day) for ninety-five and ninety days, respectively. The blood serum levels ranged between 12 and 25 mg. per cubic centimeter. The first (V. B.) had had a nephrectomy on the right side four years previously, for far advanced caseous renal tuberculosis, and on admission showed evidence of progressive tuberculous involvement of the left kidney and bladder. The second (J. S.) had had primary pleural effusion followed just prior to admission by rapidly progressive far advanced hematogenous pulmonary tuberculosis. In each case streptomycin was felt to offer the only hope for recovery. Because the pregnancies were in the second trimester, it was felt safer to allow them to continue rather than to resort to interruption.

At the time streptomycin therapy was started, V. B. was five and a half months pregnant and J. S. four months pregnant. Both showed improvement during and following streptomycin therapy, though vestibular function was completely lost in each patient. In each case examination of the placenta revealed no gross or microscopic abnormalities.

The patient V. B. was delivered of a female infant by cesarean section at what was calculated to be approximately eight and a half months of pregnancy. The infant breathed and cried at once. The birth weight was 5 pounds 6 ounces (about 2,438 Gm.). The occipitofrontal circumference of the head was 12¼ inches (31.02 cm.) and the circumference of the chest was 11¾ inches (28.13 cm.). This infant was given unusually close observation, but nothing abnormal in its neonatal behavior was noted. She was on demand bottle feeding after 48 hours of age and by 3 weeks of age had reached a weight of 6 pounds (about 2,722 Gm.)—a gain of 10 ounces (about 284 Gm.) over birth weight. Reactions to Kahn and tuberculin tests were negative at 10 days of age, and the reaction to the tuberculin test repeated at 6 months of age was negative. Roentgenologic observations of the chest at 6 months were normal. It was evident from early infancy that the child could hear. There was no nystagmus or other neurologic abnormality to indicate vestibular involvement. This child was 9 months of age at the time of writing. She was able to sit up, play with objects and in general behaved in a normal fashion. She was regarded by several pediatricians and by other attendants as a normal infant.

The patient J. S. delivered a 6 pound 9 ounce (about 2,523 Gm.) boy spontaneously after medical induction at approximately the ninth month of gestation. The infant measured 19 inches (47 cm.) in length; the occipitofrontal circumference of the head was 13¼ inches (33 cm.) and the circum-

ference of the chest was 13 inches (32 cm.). General examination revealed no abnormalities, and it was determined rather early that the infant could hear. No abnormalities were observed in a roentgenogram of the chest. Kahn and routine laboratory tests elicited negative reactions. Considerable regurgitation was encountered for the first two weeks of life, leading to a consideration of several possible diagnoses, but the infant gradually regurgitated less, and by the third week of life normal gain in weight was observed. This boy was followed closely for nearly a year and at the time of writing was regarded as entirely normal. At 10 months he was 28¼ inches (71.76 cm.) in length, weighed 20 pounds (about 9,072 Gm.) and had circumferences of the head and chest of 18 inches (45.72 cm.) each. These are normal measurements. He sat up well, played with objects with dexterity and normal neuromuscular control.

CONCLUSIONS

We realize the danger of drawing conclusions from 2 cases, but thought it would be of interest to report that streptomycin administration during the second or third trimesters of pregnancy did not appreciably harm the infant in 2 instances. We would be hesitant to advise administration of streptomycin during the first trimester because of the generally accepted sensitivity of the fetal structures in the anlage stage during that period. We would welcome further information on the condition of infants born to mothers receiving streptomycin during pregnancy.

Council on Physical Medicine

REPORT OF THE COUNCIL

The Council on Physical Medicine has adopted and authorized publication of the following report as a revision of its previous statement "Acceptance of Ultraviolet Lamps for Disinfecting Purposes." [1]

HOWARD A. CARTER, *Secretary.*

ACCEPTANCE OF ULTRAVIOLET LAMPS FOR DISINFECTING PURPOSES

PRESENT STATUS

This article represents an analysis of the present status of the proposed use of ultraviolet lamps for disinfecting purposes, indicating the probable degree of effectiveness that may be expected in the various applications, and a recommendation of supervisory organizations (state, county, municipal) under whose purview such uses appears to belong. This analysis is followed by a statement of the Council "Requirements for Acceptance of Ultraviolet Lamps for Disinfecting Air."

In reconsidering the previous statement [1] the Council reaffirmed its decision to accept ultraviolet lamp devices only as adjuvants or supplements to other methods of disinfecting air in hospitals, nurseries and operating rooms, where the population can be controlled.

Perusal of recent advertising literature and reports, issued by manufacturers, indicates that the use of ultraviolet lamps for disinfecting purposes is proposed for a wide range of applications (dairy and poultry industry; irradiation of meat, beverages, etc.) that are outside the purview of the Council on Physical Medicine.

Under the Council's rules the acceptance of any device by the Council may not be used to promote the sale of such device for uses that are not specifically indicated by the Council's acceptance.

Sales promotion for installation of ultraviolet disinfecting lamps, for applications outside the Council's purview, must not include references to applications accepted by the Council.

I. ANALYSIS OF PRESENT STATUS OF ULTRAVIOLET LAMPS FOR DISINFECTING PURPOSES

After due consideration of the present status of the use of ultraviolet radiation as a germicide, in consultation with bacteriologists, physicists, chemists, ventilating engineers and other scientists, the Council on Physical Medicine [1] promulgated its first regulations for acceptance of ultraviolet lamps for use as an adjuvant in the disinfection of air.

It was then noted, and it continues to be true to this day, that a lamp used for disinfecting purposes is a single unit in an installation and that compliance of the ultraviolet output of a single lamp unit with the Council's requirements does not insure adequate radiant disinfection or the safety of the occupants of the room in which an installation of such lamps is in actual use. Obviously the manufacturer and distributor of such lamps, as well as the superintendent of the hospital, must assume some responsibility for the adequacy of the lamp installation for the purposes of radiant disinfection of the air and for the adequacy of the protection from injury of the occupants of the space irradiated. Concerning these questions the Council cannot undertake supervision or assume responsibility for the satisfactory performance of any particular installation. While much progress has been made in protecting the occupants, the most frequent complaint that comes to the attention of the Council is injury by ultraviolet burns and conjunctivitis caused by improperly installed ultraviolet lamp fixtures. The Council therefore recommends that, before occupancy of the beds and cubicles, measurements be made to determine that the ultraviolet intensities do not exceed the values specified in this acceptance.

The total amount of direct and scattered ultraviolet radiation incident on the occupants must be kept below the level that will produce conjunctivitis, erythema and any other injurious physiologic effects that may arise from prolonged irradiation. This requirement should be met by a suitable arrangement of the lamp fixtures and light baffles and not by requiring the occupants of hospital wards and nurseries to wear glasses and a special covering of the parts of the body (face, hands) normally uncovered. Recently the attention of the Council was called to a drying and roughening of the skin of some of the nurses and infants in a nursery (caused by the slow photochemical action of diffusely reflected ultraviolet radiation) that was remedied by painting the walls and ceiling with a decorative, light blue paint that absorbed these rays. The Council's specification of the maximum allowable intensity for continuous exposure to ultraviolet radiation is based on measurements in this nursery after painting the walls and ceiling. Recent developments indicate that reflected ultraviolet intensities in excess of that specified by the Council should be remedied by painting all ordinary and all perforated acoustic ceilings with a standard oil paint or by painting nonperforated acoustic materials with a coat of ordinary glue wall size.

The efficiency of the emission line 2,537A (angstroms) in producing an erythema is very high and, in contrast, the efficiency of this emission line in producing tan is very low.[2] As a result of this slow-acting protective mechanism (tanning, skin pigmentation) the occupant of the room may suffer severe burns.

The data governing the Council's Acceptance of Sun Lamps [3] show that exposure to an intensity of 36 microwatts per square centimeter of radiation of wavelength 2,537A produces an erythema in about fifteen minutes. If the reciprocity law holds for very low intensities and long exposures, then the total intensity of the ultraviolet radiation (diffusely reflected from the walls and fixtures and emanating directly from the lamp) incident on the occupant for seven hours or less should not exceed five-tenths microwatt per square centimeter (0.5μW/cm.^{2}) and for continuous exposure (twenty-four hours a day) should not exceed 0.10 microwatt per square centimeter [4] of wavelength 2,537A. How to design the lamp installation to meet the requirements for adequate disinfection of a room and at the same time protect the occupants is a problem for solution by the sanitary engineer.

At the present juncture the design and installation of ultraviolet lamps in their fixtures for disinfecting purposes is empiric and the adequacy of disinfection by any given installation of lamps must be judged by clinical experience. For

1. Acceptance of Ultraviolet Lamps for Disinfecting Purposes, J. A. M. A. **122**: 503 (June 19) 1943.

2. Luckiesh, Matthew, and Taylor, A. H.: Production of Erythema and Tan by Ultraviolet Energy, J. A. M. A. **112**: 2511 (June 17) 1939.

3. Acceptance of Sunlamps, J. A. M. A. **102**: 42 (Jan. 6) 1934; **114**: 325 (Jan. 27) 1940.

4. The accuracy of this value is confirmed by tests recently reported by Anderson, W. T.: Arch. Phys. Med. **28**: 705 (Nov.) 1947.

example, in connection with the first Acceptance [1] clinical evidence was submitted to the Council showing that, in a scarlet fever ward (size about 60 by 27 by 11 feet) containing sixteen cubicles, four lamp units suspended over the central corridor, each lamp unit emitting a radiant flux of 30 microwatts per square centimeter at 1 meter, were found inadequate; but eight lamp units in the ward, each unit protecting two cubicles, and a ninth unit at the entrance, prevented cross infection. This is a rather high intensity (requiring twenty minutes calculated time to produce a minimum perceptible erythema) incident on a person of average height, standing directly under a lamp fixture suspended from a ceiling of average height.

Experience shows that an ultraviolet lamp, mounted in a fixture that shines downward (a "light curtain") in a corridor, is a potential hazard from burns, especially on the calves and ankles of the attendants. Present day disinfection is principally by irradiation of the upper air of the room with fixtures attached on the side walls, shining crosswise, with minimum intensities incident on the ceiling, involving no direct radiation downward to the face level of the attendants in the room. Hence, enough fixtures should be used to provide an average ultraviolet intensity of 20 to 25 microwatts per square centimeter throughout the whole irradiated area to disinfect the area completely in one to two minutes and to maintain an adequate disinfection while the lamps are in operation. This is a matter of engineering design, beyond the Council's purview.

PHYSICAL DATA ON DISINFECTING LAMPS

Experimentally, equal amounts of energy of different wavelengths being applied, it is found that the spectral band at 2,652A appears to produce the maximum bactericidal action and that the emission band at 2,537A is about 75 per cent as effective (on Escherichia coli). This difference in effectiveness is negligible in the present considerations because in readily obtainable sources of germicidal radiation, especially in the low vapor pressure (high voltage) mercury discharge tube, which is well adapted for killing micro-organisms, the ultraviolet radiant power of wavelength 2,652A is less than 0.2 per cent of that of wavelength 2,537A, the resonance emission band that dominates the whole ultraviolet spectrum of this type of lamp. Thus the use of a lamp emitting principally the wavelength 2,652A is impracticable.

Over 90 per cent of the total biologically effective ultraviolet radiation of wavelengths shorter than 3,132A emitted by the low pressure mercury discharge (whether in quartz or in a transparent glass tube) is concentrated in the emission line at 2,537 A. For this reason the emission line at 2,537 A, logically and by common consent, is taken as the standard of homogeneous ultraviolet radiation for evaluating the ultraviolet output of germicidal lamps, just as the wavelength 2,967A in the high vapor pressure (low voltage) mercury arc is taken as the standard of homogeneous ultraviolet erythematogenic and antirachitic radiation in evaluating the ultraviolet output of therapeutic lamps.[3]

The low pressure mercury discharge in a suitable glass tube or in a suitably filter-jacketed quartz tube which readily transmits the strong, highly germicidal emission line at 2,537A but is opaque to wavelengths shorter than about 2,200A (that generate ozone) appears suitable to supplement other means of disinfection when operated under controlled conditions and limited to certain types of applications. In other words, the room must be relatively free from dust and infecting bacteria, without the use of ultraviolet disinfecting lamps. Ultraviolet radiation is not a substitute for cleanliness.

From the evidence available it appears that a minimum of 5,000 to 10,000 microwatt seconds per square centimeter (μW sec./cm.^{2} or 50,000 to 100,000 ergs/cm.^{2}) of homogeneous radiation of wavelength 2,537A is required to produce adequate (practically 100 per cent) killing of micro-organisms, especially bacteria. This value may, perhaps, be lower for air, depending on the amount of dust and suspended droplets. With an exposure of fifty to one hundred seconds this will require an intensity of 100 microwatts per square centimeter.

The Council has adopted 100 microwatts per square centimeter of homogeneous radiation of wavelength 2,537A as the unit of germicidal intensity (G. U.); that is, 1 G. U. = 100 μW/cm.^{2} of radiation of wavelength 2,537A.

Since the ultraviolet emission from the low vapor pressure mercury discharge tube is practically homogeneous radiation of wavelength 2,537A, such a lamp can be readily calibrated in absolute value and used as a standard. As noted in the foregoing, the intensity at 1 meter may be only one fifth of the Council's unit, or 20 microwatts per square centimeter, for safety to the occupants, provided sufficient lamp units are used.

SCOPE OF THE COUNCIL'S ACCEPTANCE OF ULTRAVIOLET LAMPS FOR DISINFECTING PURPOSES

The Council's first specifications of "Acceptance" were promulgated after careful consideration to the feeling, expressed by manufacturers vitally concerned in the matter, that the general acceptance of the use of ultraviolet radiation as a sanitary agent may necessitate some form of regulation and that ultraviolet generating units offered to the public and medical profession may be classed with antiseptic agents requiring a degree of control of their potency and keeping qualities.

In the meantime, apparently to capitalize on the dramatic appeal to the public and in some instances on a liberal interpretation of a limited amount of statistical data, the use of ultraviolet lamps is proposed for a variety of disinfecting purposes far exceeding the purview of the Council on Physical Medicine, and involving consideration by state, county and municipal health boards, sanitary commissions and safety engineers, who can supervise, follow up and enforce their requirements.

It is not the intention of the Council to evade its responsibility, and, as in the past, it intends to report on the possibilities and limitations of devices and procedures offered for healing purposes, including the use of ultraviolet radiation.

The procedure of disinfection by ultraviolet radiation is too new, too complex and apparently too uncertain, where virulent organisms (e. g., typhoid) may be concerned in spreading epidemics, to warrant wide unsupervised use. Moreover, in view of the use that would be made of its "Acceptance" for advertising purposes; also the legal implications involved, and the precedent that would be established in the preparation of serums, blood irradiation, and so on, the Council cannot be expected to accept devices designed for the unrestricted use of ultraviolet radiation for disinfecting purposes where conditions cannot be controlled and where the effectiveness is far below the maximum (100 per cent).

It is understandable why a manufacturer desires to establish the widest possible application of a new device. In the present instance the variety of proposed applications of ultraviolet radiation for disinfecting purposes is unprecedentedly large in comparison with the three medical applications (hospitals, nurseries and operating rooms) that, as will be noted presently, fall within the Council's purview. If the advertising matter issued by a lamp manufacturer and by a lamp fixture manufacturer includes all contemplated applications in one general folder or brochure, the Rules of the Council will be violated because nonaccepted procedures will be advertised with accepted procedures.

Herewith follows an analysis of some of the proposed applications of ultraviolet radiation as a disinfectant and a statement of the specific applications that appear to fall within the Council's purview.

In its first "Acceptance" [1] the Council reported the advantages and disadvantages of the use of germicidal ultraviolet radiation for sterilizing purposes which are summarized in the 1941 issue of "The Chemical Action of Ultraviolet Rays," by Ellis and Wells, second edition, by Francis F. Heyroth [5]; also in the researches of Koller,[6] who found that while sterilization of glassware and dishes is possible by means of ultraviolet radiation it was extremely important to start with fairly clean surfaces. Practically the same results are reported in an investigation by Appling and Tanner.[7] This was confirmed at that time in unpublished reports of tests made by the United

5. Ellis, C., and Wells, A.: The Chemical Action of Ultraviolet Rays, revised by F. F. Heyroth, New York, Reinhold, 1941, p. 718.

6. Koller, L. R.: J. Applied Physics **10**: 629, 1939.

7. Appling, J. W., and Tanner, F. W.: Bactericidal Effect of Ultraviolet Rays on Microorganisms on Restaurant Glass-Ware, Proc. Soc. Exper. Biol. & Med. **47**: 51 (May) 1941.

States Public Health Service. While these investigators noted decided improvement on irradiation, complete sterilization did not result in every case.

Reference was made also to an editorial on "Disinfection by Light,"[8] showing that much remains to be done in studying the capacity of such lamps to reduce the dangerous bacterial content of the air, not only under controlled laboratory conditions, but also in the more difficult and varied circumstances of practical use. This statement remains true to this day.

In this connection it is important to note that in order to kill a micro-organism a direct hit by ultraviolet rays of sufficient intensity is required. This is difficult to accomplish on the edge of a drinking cup, also in a liquid containing suspended matter or in air laden with dust particles that shield the organism. To provide adequate sterilization a germicide must effect practically 100 per cent killing. Ultraviolet germicidal rays cannot penetrate deeply and hence may be absorbed by finger marks, saliva, cosmetics or other contamination on a drinking cup. The ultraviolet germicide lamp, therefore, appears to be an uncertain means of sterilizing solid objects (drinking cups, combs, brushes, shaving utensils, shoes, toilet seats) even if irradiation of the whole surface is possible.

If ultraviolet germicidal lamps are used to irradiate shelves and housing in which freshly washed eating and drinking utensils, and the like, are stored, then adequate protection is required to prevent ultraviolet burns on the hands and arms of the attendants who manipulate these utensils.

Recent evidence seems to indicate that the ultraviolet germicidal lamp can be used for disinfecting the water used in beverages and the like but only after adequate removal of suspended material; and it is applicable only to liquids which are highly transparent to ultraviolet germicidal radiation. As is to be expected, this irradiation process requires an expert bacteriologist to test the product for purity and freedom of pathogenic organisms.

About three decades ago an elaborate attempt was made to disinfect water, on a large scale, by ultraviolet radiation using hot quartz mercury arc lamps, which, under the conditions of operation, remained relatively cool, and emitted a large amount of germicidal radiation of 2,537A, and longer wavelengths. The presence of suspended matter and the necessity of keeping the surface of the quartz glass covering of the lamps free from slime (algae) made ultraviolet radiation an uncertain method of disinfecting water. Consequently, the proposal to irradiate the water supply of a mountain resort hotel, obtained from springs that became turbid after a freshet, was rejected.

With the advent of the low vapor pressure mercury arc germicidal lamp the proposal has been revived to disinfect, by ultraviolet radiation, the water supply of summer camps and isolated rural communities. This will require a periodic bacterial examination to determine the effectiveness of the irradiation. Evidently this is a task for the board of health, or sanitary commission of the state or county, whose duty it is to check the purity of the water supply. In the light of available evidence the Council is not convinced of the efficacy of this method of disinfecting water.

Although mold spores are difficult to kill by ultraviolet rays, recent reports seem to indicate a reduction in growth of mold by "direct hits" on directly irradiated surfaces of tanks of sugar syrup, walls of bakeries, meat storage rooms and the like. These are commercial applications that financially will solve themselves, or in the case of food and meat storage can be handled best by the inspectors already employed in that service.

Apparently some of these installations are made as a matter of competition. At any rate, in the case of one large meat processing plant, the Council's consultant was informed that no observations had been made on the effectiveness of the ultraviolet lamp installation, presumably for the reason that the product was consumed before it had time to mold.

Another proposal is to use the germicidal lamp for irradiating milk. When this process was first tried out, using arc lamps with impregnated carbon electrodes, it was found that a slight overexposure to ultraviolet radiation produced a disagreeable taste; also that the wavelengths in the range of 2,537A were more effective in causing this bad taste than the wave band of intense radiation, at 2,852A, emitted by the magnesium arc. Evidently if this process of ultraviolet irradiation is adopted in the dairy industry it is incumbent on the state or municipal sanitary commissions to see that the consumer receives a palatable product.

The poultry business is of great economic importance, and the sale of ultraviolet disinfecting lamps is being promoted to reduce the spread of infectious diseases among large flocks of chickens. This is reported possible when there is a regular attendant to service the lamps. On the other hand, there is also a large economic waste and loss of capital when the small scale poultry raiser has not the time or patience to dust off the lamp "every day" to keep it at maximum efficiency, and discontinues its use. In the light of present evidence the Council does not accept the application of disinfecting lamps in the poultry business.

The use of ultraviolet lamps for disinfecting theaters, barracks, industrial plants, assembly halls, waiting rooms, schools, buses for transporting school children, street cars and the like, is on the borderline of applications that the Council is not convinced it should accept without fundamental qualifications that are not enforceable, for the following reasons: (1) because the population cannot be controlled; (2) because of the dramatic appeal to the public that inevitably will lead to exploitation by unscrupulous sales promoters; (3) because of "the futility of trying to stop colds among school children by irradiating only their classrooms[9] and not controlling their surroundings when they are not in the classroom," and (4) because statistical data are so variable. These data indicate that, although ultraviolet radiant disinfection of air can be substituted for actual air displacement in reducing cross infection in chickenpox, measles and mumps,[10] the uncertainty (as measured by the number of absences due to colds) ranges from a negative value (more absences from the irradiated school than from the control school) to definite positive improvement in attendance.

Probably the best controlled observations on reduction of cross infection were obtained at the U. S. Naval Training Center, Camp Sampson, N. Y., where observations were made on large groups of recruits housed in barracks as follows: (1) barracks irradiated with high intensity germicidal lamps; (2) alternate barracks having low intensity germicidal lamps, and (3) barracks used as controls in which there were no germicidal lamps.

The results of this investigation,[11] which extended over a period of six months (December to May) are impressive and instructive in showing that the incidence of respiratory illness in the barracks irradiated with low intensity ultraviolet lamps followed the same undulations that occurred in the adjacent control barracks, whereas in the barracks irradiated with a high intensity there was a definite reduction in the incidence of respiratory illness—a reduction estimated at 25 per cent for the entire period of observation of respiratory illness in the high intensity irradiated group as compared with the control group, "and not due to chance." These data are confirmed in a prolonged series of observations, during the winter of 1945-1946, at the Great Lakes Naval Training Center.[12] In this report data are given showing that ultraviolet irradiation of the floors and upper air in barracks, housing recruits, resulted in a 19.2 over-all reduction in total respiratory disease. Considering streptococcus disease (scarlet fever plus tonsillitis and pharyngitis having strongly positive throat cultures), a 24 per cent reduction in the incidence of disease was observed in the radiated group.

8. Disinfection by Light, editorial, Brit. M. J. **2**: 707, 1940.

9. Wells, W. F.: Measurement of Air Borne Infection by the Disinfection of Air, Am. J. M. Sc. **200**: 177-180, 1945. Wells, W. F.; Wells, Mildred W., and Wilder, T. S.: Am. J. Hyg. **35**: 97-121, 1942.

10. Wells, M. W.: Ventilation in the Spread of Chickenpox and Measles Within School Rooms, J. A. M. A. **129**: 197-200 (Sept. 15) 1945.

11. Wheeler, S. M.; Ingraham, H. S.; Hollaender, A.; Gershon-Cohen, J., and Brown, E. W.: Ultraviolet Light Control of Air Borne Infections in a Naval Training Center, Am. J. Pub. Health **35**: 437-468, 1945.

12. Miller, W. R.; Jarrett, E. T.; Willmon, T. L.; Hollaender, A.; Brown, E. W.; Lewandowski, T., and Stone, R. S.: Evaluation of Ultraviolet Radiation & Dust Control Measures in the Control of Respiratory Disease at a Naval Training Center, J. Infect. Diseases **82**: 86-100 (Jan.-Feb.) 1948.

In the opinion of the authors of this report[12] the results of their studies do not warrant the general application of ultraviolet radiation for control of air-borne infection in barracks.

An average reduction of 25 per cent in respiratory infection seems to be a conservative estimate of the effectiveness that can be expected of ultraviolet irradiation. In this connection it is relevant to cite a recent report issued by the New York State Department of Health,[13] which states that ultraviolet radiation seemed to have a definite effect in modifying the spread of measles in the classrooms. However, on the basis of these observations the authors state specifically that they are not recommending routine installation of ultraviolet lamps in classrooms.

A good illustration of the difficulty of preventing possible cross infection among children is a recent instance in which several kindergarten children shared their much-chewed "bubble-gum" (which in itself rapidly becomes an unsanitary material) with a child who was not permitted to have such gum.

Evidently the existing state and municipal health and sanitary commissions, staffed with competent, financially disinterested personnel and vested with legal authority to enforce safety regulations, are the proper authorities to consider these proposed applications of ultraviolet disinfection.

II. REQUIREMENTS FOR ACCEPTANCE OF ULTRAVIOLET LAMPS FOR DISINFECTING AIR

On the basis of the foregoing considerations the Council on Physical Medicine has decided to continue its previously announced policy[1] of accepting ultraviolet lamps, as an adjuvant, for disinfecting air in hospitals, nurseries and operating rooms (relatively free from dust) as practiced by present day empiric methods.

Clinical evidence submitted to the Council shows that under properly controlled conditions killing of air-borne micro-organisms by ultraviolet rays may be used to supplement other methods of disinfecting air for prevention of cross infection in contagious wards in nurseries and hospitals and for reducing air-borne infection of wounds in operating rooms. The deleterious effects of ozone generated by ultraviolet lamps are recognized. The Council therefore requires for acceptability of ultraviolet disinfecting lamps that, under suitable ventilation, in the space near the occupants of the room the concentration of ozone shall not exceed 1 part in 10,000,000.[14] However, in view of the recent researches by Witheridge and Yaglou[15] showing that a much lower concentration (1 part in 25,000,000) is irritating to the mucous membranes of the upper respiratory tract, this specification of 1 part in 10,000,000 is tentative, awaiting confirmation of the evidence that a lower concentration of ozone is desirable in nurseries and hospital rooms occupied twenty-four hours a day. If the odor of ozone is distinctly perceptible the Council recommends increased ventilation.

Recently manufacturers have determined on the manufacture of two kinds of ultraviolet disinfecting lamps: (1) the type "L" lamp that generates a low amount of ozone and (2) the type "H" lamp that produces a high amount of ozone. The Council accepts only the type "L" lamp, that generates practically no ozone.

In considering ultraviolet generators for disinfecting purposes the Council makes no distinction between lamps for use in air conditioning ducts and lamps for use in open rooms in which there is only a slow circulation of air. In both cases a sufficient number of lamps must be provided to insure adequate disinfection of the air as determined by approved culture tests or other accepted procedures. So that an ultraviolet output above the minimum value for adequate disinfection may be maintained, the Council recommends that the ultraviolet intensity of each lamp unit be measured at least once a month.

To comply with the Council's requirements the ultraviolet spectral energy distribution of the disinfecting lamp shall be comparable in lethal effectiveness with the low vapor pressure mercury discharge tube, in which the dominant radiation is of wavelength 2,537A.

The minimum intensity at right angles to and at a distance of 1 meter from the plane of the lamp tube in its fixture shall not be less than the germicidal equivalent of 20 microwatts per square centimeter of homogeneous radiation of wavelength 2,537A. The useful life of the lamp shall not be less than four thousand hours. During this period the ultraviolet output shall not fall below the herein specified minimum intensity. To meet this requirement the lamp may be provided with a voltage regulator to compensate for the decrease in intensity of ultraviolet with usage; or the lamp may emit a sufficient excess of ultraviolet radiation when new, so that the output shall not fall below the specified minimum value (20 μW/cm.^{2} at 1 meter) in less than four thousand hours' operation. In either case the installation shall be provided with adequate safeguards against overexposure of the occupants of the room to ultraviolet radiation. The burner of the lamp shall be of glass or of suitably filter jacketed quartz, highly transparent to the emission line at 2,537A, and opaque to radiation of wavelengths shorter than 2,200A, to prevent the generation of an injurious amount of ozone, largely produced by these short wavelengths. To insure compliance with these requirements the lamp may consist of one, two or three tubes, mounted and operated as a unit.

For consideration of acceptance by the Council, the manufacturer shall submit a lamp unit in its fixture, permanently marked as to its useful life, and its radiant flux in microwatts per square centimeter of wavelength 2,537A, at 1 meter under the normal power input used to insure a useful life of not less than four thousand hours. In addition the manufacturer shall submit satisfactory clinical evidence, obtained over a period of not less than four winter months, of the effectiveness of an installation of such lamps in maintaining adequately sterilized conditions in the space (hospital, nursery) subjected to radiant disinfection.

13. Perkins, J. E., Bahlke, A. M., and Silverman, H. F.: Effect of Ultraviolet Irradiation on Spread of Measles in Large Central Schools, Am. J. Pub. Health **37**: 529, 1947.

14. This specification of an upper limit of one part in 10,000,000 was recently confirmed by W. T. Anderson, Jr., Arch. Phys. Med. **28**: 705 (Nov.) 1947.

15. Witheridge, W. N., and Yaglou, C. P.: Tr. Am. Soc. Heat. & Ventl. Engr. **45**: 509, 1939.

Council on Foods and Nutrition

The following statement concerning the potential health hazards of pesticides has been approved for publication by the Council on Foods and Nutrition.

JAMES R. WILSON, M.D., *Secretary.*

HEALTH HAZARDS OF PESTICIDES

The Council on Foods and Nutrition of the American Medical Association is acutely aware of the toxicologic problems presented by the rapid introduction of synthetic organic pesticides and herbicides. The chemical contamination of foods with residues of these substances is but a part of the broader problem created by their wide use, for in addition to the danger from ingestion, the effects of inhalation and skin absorption must be determined.

The problem is created by the great number of new pesticides on the market. The appearance of these is creating an increasing volume of inquiries at Association headquarters. That danger exists is evidenced by the appalling lack of factual data concerning the effect of these substances when ingested with food. The chronic toxicity to man of most of the newer insecticides is entirely unexplored. In fact the majority are so new that their limitations and even their full scope of usefulness have not been established.

The Council recognizes the potential usefulness of newly developed pesticides and herbicides. At the same time it recognizes also the potential hazards to individual and public health of the unrestricted use of pesticides and herbicides which are placed on the open market before they have been adequately studied and their toxicologic properties determined. It is obvious that controls must be placed on the sale and distribution of products of unknown or incompletely known toxicity. The time to establish controls, voluntarily or otherwise, is now, before possible tragic consequences occur. The Council urges, therefore, that measures be taken immediately to insure adequate protection of the public.

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SATURDAY, AUGUST 28, 1948

ALLEGED CANCER BIOTHERAPY

Roskin [1] and his associates of the University of Moscow have claimed that Trypanosoma cruzi, the causative agent of Chagas' disease, is positively cancerotropic. When injected into normal animals the trypanosomes multiply in the heart, spleen, liver, bone marrow and lymph nodes. In animals with malignant growth, however, the trypanosomes, they assert, are absent from these organs and are concentrated solely in the neoplasm. Thus localized the trypanosomes destroy the malignant growth, presumably caused by the formation or liberation of a specific cancerolytic substance. The Soviet biologists say that this cancerolysin can be extracted from artificial cultures of trypanosomes and is an effective cure for human cancer.

The trypanosome extract was tested on 18 patients with cancer of breast, larynx, uterus or lips. Destruction of the tumor, the Soviet investigators assert, was noted in 11 patients after daily subcutaneous injections of relatively large doses. In some cases softening and shrinking of the tumor was noted within eight days after the first injection. Healthy granulation appeared where the tumor sloughed. Recurrence was not observed in any one of the 11 successful cases.

These encouraging results have been received with skepticism by American investigtators caused by failure to confirm the basic experimental evidence underlying the alleged clinical victory. For example, Cohen [2] and his associates, of the California Institute of Technology, exposed thin slices of mouse carcinoma tissues to trypanosome extracts prepared according to the Soviet technic. Control tests were made with thin liver slices. Demonstrable carcinolytic effects were not noted microscopically. Specific carcinolysins, however, were demonstrated in parallel tests with certain bacterial filtrates (e.g., Sporosarcina ureae and Aspergillus fumigatus).

More detailed tests are currently reported by Hauschka and Goodwin [3] of the Institute for Cancer Research, Philadelphia. Eight different strains of T. cruzi were tested against five varieties of spontaneous and transplanted malignant tumors in over 1,000 experimental mice. The trypanosomes tested included all strains used by the Soviet investigators.

In their hands infection of the tumor mice with the more virulent T. cruzi strains resulted in a consistent inhibition of the tumor growth, but generally did not lengthen the life of cancer mice beyond that of untreated controls. In all cases tumor inhibition was accompanied by a loss of body weight, the weight loss being closely correlated with the virulence of the strain.

Hauschka found no evidence that any one of the eight strains was "positively tumerotropic," as claimed by the Soviet investigators. Injected into cancerous mice, the trypanosomes were only lightly present in the malignant growth, but were heavily concentrated in heart, liver, spleen, kidneys, small intestines and skeletal muscles, as in normal mice. From this the Philadelphia workers conclude that tumor inhibition by living T. cruzi does not appear to be due to an elective localization in the cancerous tissues, but to a general depletion of the host due to the infection. When the infection is checked by drugging with quinoline, the previously inhibited tumor resumes its usual growth rate, and the host eventually dies of cancer.

Culture lysates tested against cancerous mice gave no signs of an inhibiting or cancerolytic effect, and did not prolong life. Death among the treated mice was often sooner than among the untreated controls. From these negative results the Philadelphia investigators conclude that the alleged "endotoxin" of T. cruzi does not at present hold out much promise in practical clinical therapy.

PESTICIDES: CHEMICAL CONTAMINANTS OF FOODS

The development and use of new pesticides and herbicides have created public health hazards. Studies indicate that already many constituents of the American diet may be contaminated with materials of unknown toxicity used to destroy insect pests or weeds.

The insecticides include those materials which have been long in use such as lead arsenate, nicotine and fluorine compounds, and new materials, about which little is known, such as the organic phosphates, chlordan and many others, and DDT, which is probably intermediate between the other two.

The brands of new insecticides, fungicides and herbicides (weed killers), now on the market or contem-

1. Roskin, G.: Am. Rev. Soviet Med. **4**: 111, 1946. Klyueva, N. G., and Roskin, G.: ibid. **4**: 127, 1946. Klyueva, N. G.: ibid. **4**: 408, 1947.
2. Cohen, A. L.; Borsook, H., and Dubnoff, J. W.: Proc. Soc. Exper. Biol. & Med. **66**: 440, 1947.
3. Hauschka, T. S., and Goodwin, M. B.: Science **107**: 600 (June) 1948.

plated, number several thousand. The rapidity with which this industry has added new basic materials since the introduction of DDT is phenomenal.

The Council on Pharmacy and Chemistry and the Council on Foods and Nutrition are deeply concerned over this situation because so little is known about either the acute or chronic pathologic effects on man of these new pesticides. At its recent meeting the Council on Foods and Nutrition recognized the potential values inherent in effective pesticides. At the same time the Council recognized the health hazards involved in premature or careless use[1] of toxic substances.

When pesticides are poisonous to insects they are usually poisonous to man.[2] Their true value depends on a significant difference between the toxic effect on man and on insects. Even with this differential the amount ingested by man must be kept at a minimum. These toxic materials are potentially dangerous to those who come into direct contact with them as well as those who ingest the residues which remain on and in foods after their use in the fields. Some of the new poisons are difficult to remove; others are incorporated in the plant tissues and cannot be removed. The latter are particularly insidious.

Voluntary control by the producers and distributors of these substances should be instituted immediately. If voluntary control proves to be inadequate for the protection of the public, suitable legislation must be considered and effective means of control promptly established. At present governmental agencies find it difficult to protect the public from this potential hazard; existing agencies seem to doubt their authority and lack the funds to establish control. Prompt voluntary action by the industry is therefore imperative. The effectiveness of this action will determine the degree of governmental control ultimately required.

At a recent meeting of the Council on Foods and Nutrition the importance of the development of analytical methods for the detection of chemical contaminants was emphasized. This applies both to the whole molecule and to its degradation products. Important is the detection of the presence of pesticide residues by practical methods in fresh as well as in processed foods. The metabolism of insecticide residues and their acute and chronic pathologic effects on mammals must also be determined. Even though added controls may impede the development of pesticides, these are essential precautions which must be taken in order to avoid the danger of mass poisoning, which might well offset the potential benefits of the new agents.

The recognition of the toxicologic problems presented by the contamination of foods and beverages through the use of materials for the purpose of combating pests or the use of chemical technologic aids for improving the appearance, texture, flavor or lasting qualities of foods may well be the beginning of a new era in the science of foods and nutrition. The medical profession has long recognized that food must be free from bacterial contamination and that food must contain essential nutrients and be made to retain them in high degree during processing. Now physicians ask that foods be free from toxic residues of pesticides or other chemical technologic aids.

1. Report of the Council on Foods and Nutrition, J.A.M.A., this issue, p. 1603.
2. Lehman, A. J.: The Toxicology of the Newer Agricultural Chemicals, read at the meeting of the Association of Food and Drug Officials of the United States, Portland, Maine, June 1948.

Current Comment

NOMENCLATURE OF BLOOD

A committee for clarification of the nomenclature of cells and diseases of the blood and blood-forming organs sponsored by the American Society of Clinical Pathologists and the American Medical Association has been functioning since October 1947.[1] The chairman is Dr. Edwin E. Osgood, chief of the Division of Experimental Medicine at the University of Oregon Medical School. The membership is composed of outstanding hematologists from all sections of the United States, including special representatives of the sponsoring societies. The committee has held three meetings, two in Chicago and one in San Francisco, and plans a fourth meeting in Buffalo during August. It has been agreed that the choice of preferred terms will not be based merely on historical priority or common usage but in general, should represent the simplest, clearest and most descriptive term possible. Consistency between related terms is considered essential. The committee has given detailed consideration to terminology in the erythrocytic, lymphocytic, granulocytic, monocytic, plasmocytic and thrombocytic series of cells. Agreements reached by those attending committee meetings are submitted to a wide group of committee members for final agreement. The committee has coordinated its work and cooperated with representatives of the American Medical Association Standard Nomenclature of Disease and Operations, in order that proposed changes may be incorporated in the new edition of Standard Nomenclature. In view of the confusion in hematologic terminology members of this committee have done excellent work so far in this field. Beneficial results might be expected from similar efforts in other medical fields where confusion of terminology exists.

1. First Report of the Committee for Clarification of the Nomenclature of Cells and Diseases of the Blood and Blood-forming Organs, Am. J. Clin. Path. **18**: 443-450 (May) 1948.

ORGANIZATION SECTION

Official Notes

REVIEWS OF MEDICAL MOTION PICTURES

The Committee on Medical Motion Pictures has prepared a booklet containing all of the Medical Motion Picture reviews published in THE JOURNAL, through Jan. 17, 1948. The purpose of these reviews is to provide a brief description and evaluation of motion pictures which are available to the medical profession. Each film is reviewed by competent authorities. This is *not* a list of films approved by the American Medical Association. One copy has been mailed to the secretary of each county and state medical society. Additional copies are available on request.

Washington Letter

(From Our Regular Correspondent)

Aug. 18, 1948.

Food and Drug Administration Issues Suppository Warning

A joint warning that some "nembutal" (pentobarbital sodium) suppositories manufactured before October 1947 contain from 40 to 223 per cent of the labeled amount of "nembutal" has been issued by the Food and Drug Administration and Abbott Laboratories. Untoward reactions were first reported nine months ago, but the Food and Drug Administration learned only recently that Abbott Laboratories, the manufacturer, had begun to recall those stocks of "nembutal" suppositories which are suspect. Accordingly, physicians, hospitals, druggists and consumers possessing any bearing the code number 710 T 292 or any smaller code number have been urged to return them to Abbott Laboratories, North Chicago, Ill. Suppositories with higher code numbers, or without the letter T, are not being recalled.

Health and Science Legislation Hearings in Print

Volume 4 of the Congressional hearings held in 1947-1948 on the Taft and the Murray-Wagner-Dingell national health bills are now in print. The latest volume is devoted to testimony presented to the health subcommittee of the Senate Labor and Public Welfare Committee by I. S. Falk, director, and Wilbur J. Cohen, assistant director, of the Bureau of Research and Statistics in Social Security Administration, and Dr. Maurice H. Friedman, a Washington physician. In addition, volume 4 contains a large quantity of documentary material entered in the lengthy record by witnesses and members of the committee. Another new publication is the printed transcript of a one day hearing held June 1, 1948, by the House Committee on Interstate and Foreign Commerce on National Science Foundation legislation. It contains statements by eight witnesses, the majority of whom supported establishment of a National Science Foundation.

Veterans Administration Planning Internship Program

Straight and rotating internships will be offered in Veterans Administration hospitals under the new training program recently authorized by Congress. Although the hospitals have not yet been designated and details are still unsettled, pending results of surveys now in progress, it has been decided that: (1) intern training will not be instituted in nonresidency hospitals; (2) adequate living quarters for interns will be a prerequisite, and (3) supervision will be by deans' committees. Annual pay will not exceed $1,800 a year, with quarters, subsistence and laundry to be furnished. Appointments will be made once each year, in accordance with the practice of medical schools and hospitals in general.

Dr. Overholser Heads Delegation to London

The Department of State announces that the United States delegation to the International Congress on Mental Health in London August 11-21 consists of chairman, Dr. Winfred Overholser, superintendent of St. Elizabeth's Hospital, Washington, D. C.; Ruth Adams, head of community nursing, Veterans Administration; Col. John M. Caldwell Jr., chief, neuropsychiatric consultants' division, Army Medical Department; Dr. Martha Eliot, associate chief, Children's Bureau; Dr. Robert Felix, head, mental hygiene division, U. S. Public Health Service; Capt. Frederick L. McDaniel, chief, professional division, Navy Bureau of Medicine and Surgery; Mary E. Switzer, assistant to the Administrator, Federal Security Agency, and Dr. Harvey J. Tompkins, chief, neuropsychiatry division, Veterans Administration, Department of Medicine and Surgery.

Food Intake of Urban Germans Held Inadequate

German urbanites in the American and British zones are not getting enough to eat, according to a report released by Tracy S. Voorhees, Assistant Secretary of the Army. A study was conducted last spring by a special mission comprising Dr. Leonard A. Scheele, Surgeon General, U. S. Public Health Service; Maj. Gen. Raymond W. Bliss, Surgeon General of the Army; Dr. John B. Youmans, dean, University of Illinois College of Medicine, and others. Farmers and rural dwellers are, in general, as well nourished as before the war, said the report, but inhabitants of cities have an average per capita intake of 2,200 calories, whereas it should be 2,540. It was noted that the German male population in the 20 to 39 age group averaged 132 pounds (59.9 Kg.) in body weight, compared with a minimum desirable weight of 148 pounds (67.1 Kg.).

Water Pollution Control Policies Adopted

Officials of Federal Works Agency and Federal Security Agency, including the Surgeon General of the U. S. Public Health Service, have agreed on general operational policies in carrying out the national water pollution control program recently enacted by Congress. The necessary appropriations will be requested of Congress in January. Federal authorities estimate that full participation by the various states in the huge program would entail, among other things, construction of sewerage systems and sewage disposal plants costing more than $3,000,000,000. The U. S. Public Health Service will operate its part of the project from fourteen field offices and the Federal Works Agency from nine divisional offices.

Pan American Medical Supply Agency Launched

The newly established medical supply division of Pan American Sanitary Bureau has been all but swamped in its first weeks of operation. By August 12 steps had been taken toward handling an estimated $3,000,000 in business, according to Leslie Atkins, head of the division, which is under general supervision of Dr. Fred L. Soper, director of the bureau. The bureau's procurement branch acts as a central service agency to the twenty Latin American republics desiring to purchase drugs, medical and surgical supplies, sanitary equipment, etc., in the United States.

V. A. Authorizes Release of Medical Data

A new technical bulletin by the Veterans Administration states: "Data as to the physical or mental condition of claimants or beneficiaries of the V. A. may be disclosed to the responsible officials of federal agencies and state, county and city health departments upon request, without obtaining prior consent of the claimants or beneficiaries. Information so supplied will be marked 'Confidential, official use only.'"

GOVERNMENT SERVICES

ARMY

RESIDENT TRAINING PROGRAM

The Surgeon General's Office announces that applications for the Military Resident Training Program in Army General Hospitals are being received in the Office of the Surgeon General. Under this training program any physician who qualifies for and accepts a commission in the Regular Army Medical Corps will be given the opportunity of competing for an approved residency in the field of his choice.

The specialty training available for newly commissioned officers under this program is as follows:

1. Senior residencies in thoracic surgery, orthopedics, pulmonary diseases, pathology, ophthalmology and physical medicine.

2. Residencies in orthopedics, pathology and physical medicine.

3. Assistant residencies in obstetrics, urology, thoracic surgery, dermatology, pediatrics, anesthesia, general surgery, orthopedics, internal medicine, psychiatry, pathology, ophthalmology, otolaryngology, radiology, physical medicine and clinical physicians' training.

Officers who are not selected to enter residency training on January 1, or July 1, 1949, will, if qualified, be furnished a certificate indicating the date on which they will enter approved professional training. The program is designed to insure that all qualified applicants will be given the opportunity of completing their requirements for certification by an American specialty board.

Oct. 1, 1949, has been established as the deadline for receipt of applications from physicians who are interested in participating in this program. Application blanks may be obtained by writing to the Surgeon General, Department of the Army, Washington 25, D. C.

ACTIVE DUTY FOR RESERVE OFFICERS

The Surgeon General on June 26 invited seven hundred medical service officers to fill openings for active tours of duty. New regulations permit reserve officers to be called for voluntary three year tours in the highest grade they held prior to processing for separation, up to lieutenant colonel. Under the Reserve Retirement Act, reserve officers will receive credit for retirement pay of 2½ per cent of base pay of their highest rank for each year of active service and ½ per cent for each year of inactive service. The classes of reserve officers most needed are biochemists, sanitary engineers, physiologists, psychologists, serologists and nutritionists. Age-in-grade restrictions have been removed so that officers beyond the usual age maximum for their rank are eligible for active duty; those under 30 years of age may apply for competitive tours of duty for commissioning in the Regular Army.

AWARDS AND COMMENDATIONS

Brigadier General Leon A. Fox

At a ceremony July 22 Brigadier General Leon A. Fox, United States Army, Retired, was decorated by the British Ambassador as an Honorary Commander of the Order of the British Empire. The citation read in part as follows: General Fox, as Field Director of the United States of America Typhus Commission, rendered most valuable assistance to the British Armies. The benefit of his advice and the services of the Typhus Commission were placed at our disposal, and the whole weight of his support was lent to reinforce our bids for supplies. When we were faced with the biggest typhus epidemic of modern times in Western Europe, it was, in no small measure, due to his help that we were able to successfully prevent an outbreak, which might have been devastating. His frequent visits to the 21st Army Group were of inestimable value in planning our antityphus campaign and, later, in the control of typhus. His help was a vital factor in controlling the spread of epidemic typhus in the British Zone.

MEDICAL CONSULTANTS IN JAPAN

General Headquarters, Far East Command, reports as of July 15 that five American medical consultants arrived in the Far East for a thirty day tour during which they will confer with medical officers in the field. The consultants are Drs. Carlton N. Price, obstetrics and gynecology, Washington, D. C.; George C. Griffith, cardiology, Los Angeles; John M. Cotton, psychiatry, Ithaca, N. Y.; Clarence H. Snyder, orthopedic surgery, Grand Rapids, Mich., and Amos R. Koontz, surgery, Baltimore. They will visit Army hospitals throughout Japan, Korea and the Ryukyus Command, making ward visits, holding clinics and lecturing on the latest practices in medicine and surgery.

DEDICATE NEW TRIPLER HOSPITAL

Army officials announce that the new Tripler General Hospital on Moanalua Ridge in Honolulu, Hawaii, will be dedicated September 10 at a formal ceremony to which the public will be invited and will include an "open house" tour of the fifteen hundred bed hospital. The new Tripler will replace the 147th

Aerial view of Tripler General Hospital.

General Hospital, long familiar to Honolulans as "Old Tripler," opposite Fort Shafter. Prominent civilian and military officials and representatives of Hawaii's business and community life will participate in the ceremony marking the end of a four year period which began July 18, 1944, when Army engineers undertook the construction of this the newest and finest in the Army's hospital system.

RESERVE NURSES AND RETIREMENT BENEFITS

Women officers of the Army Nurse Corps Reserve are eligible now for reserve retirement benefits under provisions of a law enacted by the 80th Congress. Retirement pay is at the rate of 2½ per cent of the pay of the highest rank held during the period of service, multiplied by the number of years of satisfactory service. After twenty years of satisfactory service, an Army nurse may discontinue her active participation in reserve affairs and still qualify for retirement at 60, or she may continue earning qualifying points until she reaches the age of 60, and retire at a higher rate up to 75 per cent of her base and longevity pay. The standards of satisfactory service as a reservist require that 50 qualifying points be accrued each year. Points may be earned by extended active duty, by short periods of active duty training, attendance at drills, and by membership in the Officers' Reserve Corps. Thus, even nurses who remain in civilian life and do not request extended active duty may accumulate points toward retirement.

NAVY

PERMANENT APPOINTMENT OF RESERVE OFFICERS

On June 3, 1948, the Secretary of the Navy, for, and in the name of, the President, appointed officers of the Naval Reserve to permanent grades. Naval Reserve Medical Officers listed, have by virtue of their permanent appointment, the same grade as their contemporaries in the Regular Navy.

To effect his appointment, each officer is required to have in his possession, suitable identification and positive evidence that he received a Certificate of Satisfactory Service if he has been released from active duty. He must also make a certified statement as to his physical condition and take a physical examination, if appropriate.

Public Law 305—79th Congress, approved Feb. 21, 1946, provides that Naval Reserve officers shall have on their return to an inactive status the highest grades and ranks in which, as determined by the Secretary of the Navy, they served satisfactorily under temporary appointments.

Any officer who does not desire to accept the appointment authorized shall submit a statement to that effect to the Chief of Naval Personnel via the Commandant of the appropriate Naval District, stating the reasons therefor and whether or not he (or she) desires to continue in the status of an officer of the Naval Reserve.

RESERVE OFFICERS ON ACTIVE DUTY

Lieuts. (jg) Paul S. Bamberg, Boston; Robert M. Hamill, Holyoke, Mass., and Earl R. Peters, Fort Blackmore, Va., Medical Corps Reserve officers, have volunteered for one year of active duty after completing their internships at the Naval Hospital, Chelsea, Md.

The following Medical Corps Reserve officers have been nominated for their first duty: Lieuts. (jg) William J. Browning III, Merchantsville, N. J.; Joseph J. Goralka, Chicago; Burton Hall, Omaha, Neb., and Duncan O. Montgomery, Corpus Christi, Texas.

POSTGRADUATE INSTRUCTION

The following additional medical officers have been nominated to attend courses of postgraduate instruction at the institutions indicated: Comdr. Melville M. Driskell, cardiology, Massachusetts General Hospital, Boston; Comdr. Robert S. Poos, preventive medicine, University of California School of Public Health, Berkeley; Comdr. William S. Wray, pediatrics, Naval Hospital, Chelsea, Mass.; Lieut. Comdr. Elmer R. King, radiological defense, Duke University, Durham, N. C.; Lieut. Herbert G. Stoecklein, dermatology and syphilology, Naval Hospital, San Diego, Calif.; Lieut. (jg) Frederick A. Clark Jr., internal medicine, Naval Hospital, San Diego, Calif.; Lieut. Richard S. Farr, radiation effects on hematopoiesis, University of Chicago; Lieut. (jg) James R. Hamilton, dermatology and syphilology, Naval Hospital, San Diego, Calif.; Lieut. (jg) Verne K. Harvey Jr., preventive medicine, University of California School of Public Health, Berkeley, and Lieut. (jg) Robert L. Hill, internal medicine, Naval Hospital, Long Beach, Calif. Lieut. Comdr. Harold R. Scanlin, residency in surgery, Naval Hospital, Long Beach, Calif.; Lieut. Gerald E. Wineinger, residency in otolaryngology, Naval Hospital, San Diego, Calif., and Lieut (jg) Harry C. Nordstrom, instruction in aviation medicine, Naval School of Aviation Medicine and Research, Pensacola, Fla.

SPECIALISTS IN THE NAVY

The Surgeon General announces that the following medical officers were recently certified by the American Specialty Boards, bringing the total number of certified specialists in the Navy to 155: Comdr. Lawrence L. Bean (surgery); Capt. Earl F. Evans (internal medicine); Capt. Herman A. Gross (surgery); Capt. Thomas G. Hays (surgery); Comdr. Harold Hirshland (obstetrics and gynecology); Comdr. Dunne W. Kirby (internal medicine); Capt. Edward P. Madden (obstetrics and gynecology); Comdr. George L. Tabor Jr. (ophthalmology); Lieut. Comdr. Samuel V. Thompson (psychiatry and neurology), and Lieut. (jg) John R. Carter (pathology).

CERTIFICATE OF ACHIEVEMENT

The Surgeon General's certificate of achievement was presented in August to the Holy Name College, Franciscan House of Studies, Catholic University of America, in a ceremony at the Naval Hospital, Bethesda, Md. Capt. L. O. Stone, Commandant of the Hospital, made the presentation to Father Alban Maguire in recognition of outstanding services rendered to the Medical Department of the Navy during and immediately following the war years. The students assisted the Navy chaplains at the Naval Hospital with choir and religious services and were generous in making contributions to the blood bank.

PERSONAL

Comdr. Vernon E. Martens of St. Louis, Lieut. Walter H. Jarvis of Grand Saline, Texas, and Lieut. (jg) William E. Carter of Memphis, Tenn., have transferred from an active Reserve status to the Regular Navy Medical Corps.

MISCELLANEOUS

INDIAN SERVICE NEEDS PHYSICIANS

The Department of the Interior announces a reopening of a civil service examination for medical officer for service with the American Indians. No written examination on professional subjects is required. The examination consists of registration of credentials and supported statements as to qualifications and experience. Most of the Indian reservations where physicians are employed are located in states west of the Mississippi River. The 400,000 Indians in the United States and 30,000 Eskimos, Indians and Aleuts in Alaska who are beneficiaries of this service offer a variety of clinical material. The medical officer serves as the family physician and public health advisor and participates in the administration of small well equipped hospitals, of which the Indian Service operates sixty-six in the states and eight in Alaska. There are also some larger medical centers. The entrance salary is $5,232 or $6,235.20 per annum, depending on the qualifications of the applicant. An automobile is furnished for official use, annual educational and sick leave are provided, and the provisions of the United States Employment Compensation Commission Act and retirement apply. Information may be obtained from Dr. Ralph B. Snavely, Office of Indian Affairs, New Interior Building, Washington 25, D. C.

COURSE IN TECHNICS OF USING RADIOISOTOPES

The second four week course in the technics of using radioisotopes in research began August 2 at the Oak Ridge Institute of Nuclear Studies, Inc., Oak Ridge, Tenn. The institute, which is comprised of nineteen Southern universities, conducts a program of research and training in the nuclear sciences. Radioisotope training courses are under the direction of Dr. Ralph T. Overman, acting head of the Special Training Division of the institute, and the instructors are from various universities throughout the country. With these courses, leaders in the atomic energy field are conducting seminars and demonstrations, and the Oak Ridge National Laboratory, the center of radioisotope production for the Atomic Energy Commission, is assisting the institute in this activity. The current course in the technics of using radioisotopes is being attended by thirty-two members of the staffs of various universities, some as far west as Oregon and others as far east as Columbia University, New York. The staff members attending this course will have an important role in training future leaders in the medical aspects of atomic energy.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Alabama

Brown, Clyde W.....Birmingham
Davie, Robert N.....West Blocton
Snoddy, Claude C.....Birmingham

Arkansas

Riegler, Henry C. Jr.....Little Rock

California

Clark, Shirley E.....Orange
Crane, Louis B.....Los Angeles
Dubrasich, Donald M.....Watsonville
Palmer, Allan.....San Francisco
Roth, Merall.....Los Angeles
Samuels, Stanley.....Hollywood
Wissinger, Richard B.....Crescent City

Colorado

Boyle, Richard E.....Denver
DeBold, Conrand.....Loveland

Connecticut

Bennett, James G.....Hartford
Carey, Thomas B.....Conn.
Carlson, Robert I.....New Haven
Chernoff, Hyman M.....New Haven
DeBlasio, Guido A.....New Haven
McLean, Charles E.....Wallingford
Peters, Richard M.....New Haven

District of Columbia

Curtin, Thomas E.....Washington

Florida

Burnett, Stacy W.....Bartow
Dewar, William D.....Pensacola

Georgia

Adams, Harold W.....Atlanta
Brooke, Jefferson P.....Canton
Pitts, Robert O. III.....Atlanta
Smith, Stephen D.....Rome
Thigpen, Corbett H.....Macon

Illinois

Adland, Marvin L.....Chicago
Adler, Harry F.....Chicago
Belding, Hiram H. III.....Glencoe
Berger, Benjamin.....Windsor
Michels, Donald G.....Oak Park
Nelson, Karl D.....Princeton
Phillips, John A.....Crystal Lake
Schwied, William E.....Chicago
Wylie, Howard L.....Chicago

Indiana

Babb, Forrest J. Jr.....Indianapolis
Ballard, John E.....Anderson
Barnes, Bruce S.....Evansville
Bridges, William L.....Knightstown
Buckner, George D.....Fort Wayne
Mackey, John E.....Evansville

Iowa

Allen, Robert B.....Burlington
Coffey, James L.....Fremont
Mathiasen, Emmett B.....Council Bluffs
Skallerup, Glenn M.....Walker

Kansas

Matassarin, Benjamin M.....Lawrence
Neis, Delbert D.....Eudora
Postma, Lowell A.....Kansas City
Price, Edwin F. Jr.....Lawrence

Maryland

Piermont, Edwin L.....Baltimore

Massachusetts

Burke, Louis.....Chelsea
Miller, Gerald.....Cambridge

Michigan

Bullard, Rockwood W. Jr.....St. Clair
Dewane, James N.....Menominee

Michigan—Continued

Moore, Stanley A.....Ann Arbor
Sokol, William M.....Detroit
Wilson, Gerald S.....Detroit
Zyla, Edward J.....Detroit

Minnesota

Anderson, Werner W.....Brainerd
Crenshaw, John L. Jr.....Rochester
Deranleau, Robert F.....Minnesota
Nelson, Paul A.....Minneapolis
Nerenberg, Samuel T.....St. Paul
Skogerboe, Rudolph B.....Erskine
Spencer, Bernard J.....Blue Earth
Thiem, Chester E.....Gibbond

Missouri

Burch, Buford H.....Kansas City
Dreyer, Carl J.....Webster Groves
Siesener, Herbert H.....St. Louis
Stephenson, Hugh E. Jr.....Columbia

Montana

Cole, Burnett.....Miles City
Muller, John J.....Hingham

Nebraska

Mease, Willis E.....Broken Bow
Pollack, John D.....Norfolk
Wagner, Donald J.....Omaha

New Jersey

Cameron, Joseph H.....Ocean City
Dingman, Donald D.....Hohokus
Principato, Eugene R.....Camden
Reilly, John J. Jr.....Elizabeth
Rosenberg, Allan J.....Camden
Slaff, Bertram A.....Peterson
Sweeny, Ralph E.....Elizabeth

New York

Acierno, Louis J.....New York
Alsop, Reese F.....New York
Barbaro, Anthony J.....Harrison
Bluestone, Seymour S.....Brooklyn
Brauns, Wilhelm H.....Rochester
Campbell, William G.....Churubusco
Coggeshall, Allan B.....Pleasantville
Damask, Harold.....Bronx
Derrico, Nicholas A.....New York
Dexter, Marvin J.....Syracuse
Dombrowski, Edmund B.....Brooklyn
Meadows, Burton T.....Brooklyn
Sheedy, Kenneth J. .....Eggertsville
Shera, William R.....Scarsdale
Terry, Jules S.....New York
Youngwirth, Sol H.....Brooklyn

North Carolina

Deaton, William R. Jr.....Greensboro
Dortch, Hugh Jr.....Goldsboro
Pate, Marion B. Jr.....Fayetteville
Yow, Ellard M.....Henderson

North Dakota

McCusker, Thomas E.....Grand Forks

Ohio

Berley, Harry M.....Yellow Springs
Corrill, Edgar M.....Cincinnati
Cross, Charles J.....Westerville
Cuthbertson, Donald B.....Toledo
Dickey, Thomas O. Jr.....Woodsfield
Dreyer, Russell P.....Columbus
Douglass, Frederick M. Jr.....Toledo
Miceli, Gregory S.....Cincinnati
Rizzo, Russell P.....Painesville

Oregon

Range, Robert L.....Eugene

Pennsylvania

Amsterdam, Gerald H.....Philadelphia
Ayres, John A.....Huntingdon

Pennsylvania—Continued

Balshi, Stephen F.....Bethlehem
Barclay, Paul L. Jr.....Erie
Beckfield, William J.....Ben Avon
Bell, William H.....Brookville
Bernardin, Ronald M.....Philadelphia
Birmingham, William E.....Philadelphia
Blood, Raymond G. Jr.....Philadelphia
Capobianco, Frank M.....Bangor
Chamberlain, Bruce E.....Wesleyville
Ciccantelli, Mark J.....Philadelphia
Conrad, Stanley W.....Philadelphia
Davis, Cornelius C. Jr.....Philadelphia
Davis, William L.....Ashland
Dugan, Robert R.....Ardmore
London, Carl B.....Philadelphia
Masten, John M.....Philadelphia
Olson, Robert A.....Johnstown
Savage, Peter J.....Wilkes-Barre
Seely, Richard H.....Morrisville
Taylor, Harry W. Jr.....Philadelphia
Thompson, Robert A.....Somerset
Wolf, Harold.....Philadelphia
Zeiler, William B.....Munhall

South Carolina

Boozer, Albert M.....Newberry
Davis, Lewis M.....Donalds
McCoy, Edward G.....Sumter
Mills, William L.....Charleston
Timmons, Barney F.....Hartsville

South Dakota

Bern, Gerhard O.....Sioux Falls

Texas

Brown, Jack R.....Abilene
Smith, Frank T. Jr.....Freeport
Smith, Lloyd.....Mission
Spencer, Merrill P.....Houston

Tennessee

Allen, Frank S.....Memphis
Callison, Maston K.....Memphis
Moore, John R. Jr.....Nashville
Stagg, Adelbert L.....Nashville

Utah

Barrett, William W. Jr.....Ogden
Tingey, Ralph L.....Salt Lake City
Wright, John K.....Hyrum

Vermont

Sisson, William H.....Burlington

Virginia

Allen, Miller S. Jr.....Dublin
Rector, Robert R.....Lexington

Washington

Berg, Ralph Jr.....Spokane
Bergan, Donald E.....Seattle
Davis, George C.....Kirkland
Quay, Russell A.....Alderwood Manor

West Virginia

Marple, William K.....Huntington
Sampson, Roy B. Jr.....Pemberton
White, John B. Jr.....Moundsville

Wisconsin

Buesseler, John A.....Madison
Schlaeger, Ralph.....Milwaukee
Smith, Nathan J.....Wisconsin Rapids

Hawaii

Chang, Thomas Y. K.....Wahiawa, Oahu
Nip, George H. H.....Honolulu

Philippine Islands

Borja, Mariano F.....Manila

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest; such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Appoint Assistant Dean.—Dr. John C. Talbot, assistant professor of preventive medicine, University of California Medical School, Berkeley-San Francisco, has been appointed assistant dean of the school, adding duties as chief premedical adviser. Dr. Talbot is a graduate of the university, 1939, and, after service in the Army Medical Corps, joined the staff of the medical school in 1946.

Plague in Ground Squirrels.—The U. S. Public Health Service reported plague infection proved under date of June 22 in pools of fleas from ground squirrels, Citellus beecheyi, taken in San Luis Obispo County as follows: Proved June 18, a pool of 172 fleas from 31 ground squirrels shot at Salinas Dam area (United States Reservation), 4 miles east and 2½ miles south of Santa Margarita; proved June 21, a pool of 58 fleas from 11 ground squirrels shot 3 miles west of Pozo on State Highway 178, and a pool of 207 fleas from 19 ground squirrels shot on a ranch on Pozo Road 2 miles east and 1 mile south of Santa Margarita.

Police Protection for Night Calls.—The Los Angeles Medical Association has made an agreement with the Los Angeles Police Department whereby police protection will be given to any physician when the physician deems such protection necessary. The doctor on emergency call will register the call with the Los Angeles Medical Exchange and call the police department, giving the address of the emergency call and the time that he expects to arrive there. The police department will dispatch a patrol car to the address, and the policeman will remain on duty until he is dismissed by the attending physician. Each branch of the association is compiling a list of doctors who are willing to make emergency calls in their respective communities.

COLORADO

Harvey Sethman Awarded Medal.—At the commencement exercises of the University of Colorado in Denver in June, the University's annual medal for outstanding public service was awarded to Harvey T. Sethman, Executive Secretary of the Colorado State Medical Society. Mr. Sethman, who has served the state society for nineteen years, is also managing editor of the *Rocky Mountain Medical Journal.*

Annual State Medical Meeting.—The annual session of the Colorado State Medical Society will be held at the Hotel Colorado, Glenwood Springs, September 22-25, under the presidency of Dr. John S. Bouslog, Denver. The scientific sessions beginning September 23 include the following guest speakers:

Francis H. Wright, Chicago, Purulent Meningitis in Childhood.
Ferdinand R. Schemm, Great Falls, Mont., Quantitative Requirements for Water of Seriously Ill Patients with Heart and Kidney Disease.
George F. Lull, Chicago, Secretary and General Manager, American Medical Association.
Henry W. Woltman, Rochester, Minn., Differential Diagnosis of Poliomyelitis.
Edward B. D. Neuhauser, Boston, Surgical Lesions in Childhood.
Louis Schwartz, Washington, D. C., Diagnosis and Treatment of Occupation Dermatitis.

Sports events will take place Wednesday afternoon and evening. At the joint meeting of the society and its auxiliary Friday evening Dr. Dwight Murray, Napa, Calif., member of the Board of Trustees of the American Medical Association, will speak. The banquet is scheduled for Saturday evening.

FLORIDA

Narcotic Violation.—The Bureau of Narcotics, Washington, D. C., reports that Dr. Dan E. Hardie, Miami, pleaded guilty to violation of the federal narcotic law and on May 11 was placed on probation for a period of five years.

New Public Health Workers.—Five new physicians have joined the ranks of public health personnel in Florida and will be assigned as health officers in counties where vacancies exist, or as assistant health officers. They are: Drs. Joseph H. Batsche, Cincinnati; Albert O. Ryan, Covington, Ky.; Maurice M. Hall, New Orleans; Charles O. Parker, Waycross, Ga., and Holland M. Carter, Greenville, S. C.

Tuberculosis Program Progress.—Since the Florida Tuberculosis Board, the Florida Tuberculosis and Health Association and the state health department coordinated their tuberculosis programs nine months ago, the number of roentgenograms of the chest taken has almost doubled. From October 1947 to June of this year, more than 300,000 persons were given roentgen examinations as compared to 155,763 during the first nine months of last year.

ILLINOIS

Dr. Grulee Presents Collection to Library.—Dr. Clifford G. Grulee, Evanston, has given his collection of books, periodicals and letters on children's diseases to John Crerar Library in Chicago. It includes nearly 5,000 books, including a fifteenth century book, the first on child diseases ever printed, besides fifteen books of the fifteenth century and twenty-two of the seventeenth century. Periodicals include bound volumes in eight languages. The collection also includes his correspondence as editor of the *American Journal of Diseases of Children* since 1923, and as secretary of the American Academy of Pediatrics.

Chicago

Dr. Huggins Awarded Fenwick Prize.—Dr. Charles Huggins, professor of urology at the University of Chicago School of Medicine, has been awarded the Fenwick Prize, a gold medal, by the Société Internationale D'Urologie for work on the endocrine control of cancer of the prostate.

Research in Biochemistry.—The University of Illinois College of Medicine has received $7,000 from Mead Johnson and Company, Evansville, Ind., to support a two year fellowship in research in biochemistry in the department of pediatrics, under the supervision of Dr. Henry G. Poncher, head of the department.

Postgraduate Courses.—The Chicago Medical Society will present two postgraduate courses this fall, at Thorne Hall, Northwestern University. The course in hematology and neurology will be given September 13-18 and another in cardiovascular and respiratory diseases September 20-25. The faculty includes leading teachers from throughout the United States who will present an intensive review of special fields for both the general practitioner and the specialist. Each course is limited to 100 and carries a fee of $50.

IOWA

State Medical Election.—At the annual meeting of the Iowa State Medical Society, Dr. James E. Reeder, Sioux City, was installed as president; Dr. Nathaniel G. Alcock, Iowa City, was made president-elect; Dr. Allan B. Phillips, Des Moines, secretary, and Dr. N. Boyd Anderson, Des Moines, treasurer.

Society News.—The Linn County Medical Society meeting, Cedar Rapids, will hear Dr. George W. Corner, Baltimore, speak on "Twins, Triplets, Quads and Quints" September 1. At the meeting on October 15, Dr. Max M. Strumia, Bryn Mawr Hospital, Bryn Mawr, Pa., will address the society on "Intravenous Protein Feeding."

MAINE

Dedicate Unit at Jackson Laboratory.—Dedication ceremonies were held August 7 marking the first completed unit of reconstruction of the Roscoe B. Jackson Memorial Laboratory at Bar Harbor. These buildings, a group for summer students, were made possible by a gift from the Ladies Auxiliary to the Veterans of Foreign Wars. Speakers included James R. Angell, LL.D., president of Jackson Laboratory, and Dr. James B. Murphy, head of cancer research at Rockefeller Institute, New York, a trustee of the laboratory.

MICHIGAN

Dr. Heustis Appointed State Health Commissioner.—Dr. Albert E. Heustis Jr., Coldwater, was appointed state commissioner of health August 3. He has been director of the county health department and the Community Health Center of Branch County since 1945 and was previously director of the Monroe County Health Department. Dr. Heustis was graduated from the University of Michigan Medical School, Ann Arbor, in 1936 and from 1937 to 1940 served as intern, assistant resident, resident and teaching assistant in the department of surgery of the university. In 1942 he received a Master of Public Health degree from Johns Hopkins University. He is a trustee of the Michigan Hospital Association and a member of its legislative committee and is vice president and a member of the board of directors of the Southwestern Michigan Hospital Council, a trustee and member of the state hospital relations committee of the Michigan Hospital Service and a nonresident lecturer in public health administration for the University of Michigan School of Public Health.

NEW YORK

State Department Positions Available.—The State of New York Department of Civil Service, Albany, will hold examinations October 2 for an associate cancer radiologist, a senior psychiatrist and a biochemist. These are open to residents of any state in the country. On that date examinations will also be held for a junior pharmacist and a senior laboratory technician (tuberculosis), which will be limited to legal residents of the state.

Fellow in Industrial Psychiatry.—The first industrial psychiatry fellow in the School of Industrial and Labor Relations at Cornell University, Ithaca, will be Dr. Graham C. Taylor, Montreal, Canada. The fellowship is part of the school's new program to train psychiatrists for the industrial and labor relations field. Dr. Taylor will begin a two year program at the school in September, dividing his time during the fellowship between studies and research on the campus and first hand investigations in industrial plants.

New York City

Dr. Brooks to Head Physiology Department.—Chandler McC. Brooks, Ph.D., associate professor of physiology at the Johns Hopkins University School of Medicine, Baltimore, since 1933, has been appointed professor of physiology and pharmacology and director of that department at the Long Island College of Medicine. Dr. Brooks has recently returned from New Zealand and Australia, where he spent two years as a Guggenheim Fellow.

Emotional Problems of Disabled.—A grant of $73,500 from the Commonwealth Fund will be used at New York University-Bellevue Medical Center for a three year research project on the emotional problems of the physically disabled while undergoing rehabilitation training. Dr. Morris Grayson will direct the research. The project will evaluate the motivating factors in physical rehabilitation and the emotional factors that interfere with it and study what psychiatry can contribute in preparing persons for rehabilitation.

Civil Service Appointments Available.—The City of New York Civil Service Commission is opening applications September 15-30 for six positions:

Assistant medical examiner—appointment at $5,150
Neuropathologist, Grade 4—appointment at $4,650
Pathologist—appointment at $4,650
Director of Bureau of Tuberculosis, Grade 4—appointment at $7,500
Director, division of psychiatry—appointment at $7,500
Alienist (psychiatry), Grade 4—appointments as follows:
1 at $6,650; 12 at $6,150; 1 at $5,790; 2 at $5,650; 3 at $5,150; 3 at $4,150

Applications may not be made by mail.

Diagnostic and Periodic Health Examination Service.—The department of health has announced plans for its new diagnostic and periodic health examination service. The diagnostic service will be available only to patients referred by private physicians, and the patient will be sent back to the referring physician for treatment. It is an extension of the existing consultation service of the department into fields involving chronic and noninfectious diseases, nutrition and mental hygiene and aims to meet the needs of families of ordinary means. The first "pilot clinic" will be opened in the department's Lower West Side Health Center at 303 Ninth Avenue, Manhattan. About 300 patients a month will be accepted for diagnostic consultation. Any physician in New York can make the service available to his patient by filling out a blank available at the department of health. A complete report will be sent to the referring physician. The service will be for ambulatory patients only.

The periodic health examination service will be provided for persons sent by their physicians and persons from groups selected for such study by the department of health. It will involve apparently well persons. The department is interested in making such examinations as a means of getting information that will indicate the true health status of persons at various age levels and as a means of emphasizing that such periodic examinations are advisable for adults. When disability is found, the patient will be advised to go to his private physician or to seek the service of a hospital clinic.

NORTH CAROLINA

Booklet on Blood Bank.—A 16 page booklet, "Management of a Blood Bank," which describes methods used at North Carolina Baptist Hospital and Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, is being distributed to hospitals throughout the state. The booklet was prepared for the North Carolina Maternal Welfare Committee by Dr. Mary I. Griffith, instructor in obstetrics and gynecology. Procedures and technics of setting up and operating a blood bank are fully discussed and illustrated.

OREGON

Annual State Medical Meeting.—The Oregon State Medical Society will hold its annual session at the Medford Hotel, Medford, September 15-18, under the presidency of Dr. James C. Hayes of that city. The guest speakers will be four clinicians from the University of Michigan Medical School, Ann Arbor:

Henry K. Ransom, Treatment of Diseases of the Breast.
Norman F. Miller, Diagnosis and Treatment of Carcinoma of the Cervix.
Cyrus C. Sturgis, Medical Management of Thyroid Disease.
Arthur C. Curtis, Cutaneous Manifestations of Systemic Disease.

Roundtable luncheon discussions are scheduled for each day, the subjects being prevention and treatment of thromboembolism, Wednesday; hypertension, Thursday; management of bleeding of late pregnancy, Friday, and occupational and contact dermatoses, Saturday. The speaker at the annual banquet will be G. Herbert Smith, LL.D., president, Willamette University, Salem, on "Education in a Democracy."

PENNSYLVANIA

Personal.—Dr. Samuel L. Grossman, Harrisburg, was elected president of the Pennsylvania Society for Crippled Children and Adults at its silver anniversary meeting in May.——Dr. Russell S. Anderson, Erie, has been elected to the board of directors of the Pennsylvania Tuberculosis Society as the official representative of the Medical Society of the State of Pennsylvania.

Organize Trudeau Society.—The Pennsylvania Trudeau Society has recently been organized as the medical section of the Pennsylvania Tuberculosis Society with Dr. Frank A. Craig, director of clinics at the Henry Phipps Institute, Philadelphia, president, and Dr. Leon H. Collins Jr., Philadelphia, secretary-treasurer. The organization meeting was held at the close of the annual meeting and conference of the Pennsylvania Tuberculosis Society.

Philadelphia

Course in Diagnosis and Treatment of Cancer.—Temple University School of Medicine and Hospital is offering alumni and general practitioners a course in the early diagnosis and treatment of cancer, September 13-17. Drs. Elmer Hess, Erie, and George T. Pack, New York, will speak at the only evening program, September 15. There is no registration fee. Applications should be made to Dean William N. Parkinson at the university.

Research at Temple.—Temple University School of Medicine and Hospital has received the following grants from the U. S. Public Health Service: (1) $20,152 for continuation of the research project "Electrokymography of the Heart and Blood Vessels" by Drs. W. Edward Chamberlain, George C. Henny and Bert R. Boone; (2) $8,000 to finance one year's work by Dr. Machteld E. Sano on "The Lability of the Lymphomata"; (3) $4,000 to finance one year's work by Dr. Mona Spiegel-Adolf on problems of "Ultra-Spectrographic Studies of Nucleic Acids in Tumors"; (4) $10,000 to Dr. Valy Menkin on the problem of "The Relation of Cellular Injury to the Development of Neoplasia," also the "Chemotherapy of Experimental Leukemia," and (5) $18,500 on the problem "Physical and Physiological Studies of the Heart and Circulation." The National Advisory Health Council has also awarded a grant of $6,000 in support of research by Dr. Robert H. High on "Study of Effect of Streptomycin in Combination With Other Drugs in the Treatment of Tuberculosis in Infants and Children." From the Bureau of Medicine and Surgery, U. S. Navy, $6,180 to Robert H. Peckham, Ph.D., has been made for "The Experimental Determination of Neutrality in Sunglasses." Two awards from pharmaceutical companies include a grant of $27,555 from Smith, Kline & French for research in pharmacology and $1,200 from John Wyeth, Inc., for medical research.

Pittsburgh

Society Election.—At a meeting of the Pittsburgh Obstetrical and Gynecological Society Dr. James Hodgkiss was elected president and Dr. Clarence H. Ingram Jr., secretary.

Appointments to Psychiatric Institute.—Recently announced appointments to the staff of Western State Psychiatric Institute and Clinic include: Dr. Frederick L. Weniger, director of the outpatient division of the institute, and Dr. Ralph N. Zabarenko, associate research psychiatrist. In a reorganization of the division of neurophysiology in the department of research Robert H. Patton, Ph.D., has been named research neurophysiologist. Newly appointed resident fellows included Roger W. Russell, Ph.D., and Harry W. Braun, Ph.D., respectively associate professor of psychology and lecturer in psychology at the University of Pittsburgh. Dr. Robert A. Clark,

clinical director of the institute, is on a year's leave of absence to attend the International Congress on Mental Health in London in August and to study under C. G. Jung at the Institute of Analytical Psychology in Switzerland.

TEXAS

Personal.—Dr. Webb Walker was honored at a testimonial dinner on his retirement as chairman of the board of the City-County Hospital, Fort Worth, June 3. Dr. Walker, who joined the board in 1918, is succeeded by Dr. Demetrius M. Rumph.

Appoint Professor of Biochemistry.—Wendell H. Griffith, Ph.D., professor of biochemistry, St. Louis University School of Medicine, St. Louis, has accepted appointment as professor of biochemistry and nutrition and chairman of the department at the University of Texas Medical Branch, Galveston. Dr. Griffith has been associated with the biochemistry department of St. Louis University School of Medicine since 1923. He served during World War II as colonel in the Sanitary Corps and was responsible for nutrition surveys among American troops.

WASHINGTON

Admnistrative Assistant Needed.—The state department of health is receiving applications for an administrative assistant in the Hospital Planning and Development Section. The position is in Seattle and carries a salary range of $295 to $360 per month. Duties will be to assist the head of the section in planning and supervising the collection, tabulation and analysis of data pertinent to hospital construction needs. Applications and information are available from the state department of health, Seattle.

Society News.—The Pacific Northwest Obstetrical and Gynecological Association was formed at a meeting in Spokane by representatives from the Northwestern district of the United States and Canada, including Alaska. Membership is limited to members of the profession who are specialists certified by either the American or the Canadian Board of Obstetrics and Gynecology. Officers elected were: Howard C. Stearns, Portland, Ore., president; E. Murray Blair, Vancouver, British Columbia, president-elect, and Richard D. Reekie, Spokane, secretary-treasurer.

WEST VIRGINIA

Center Changes Name.—The name of the Kanawha Valley Medical Center in South Charleston has been changed to "West Virginia Medical Center." The change was approved by the House of Delegates of the West Virginia State Medical Association. The type of service rendered will in no way be affected. The institution is being operated for the exclusive treatment and control of syphilis and gonorrhea for all of the fifty-five counties in West Virginia. Patients are referred to the center by private physicians and officials of local health departments.

Outbreak of Tracheobronchitis.—The recent outbreak of respiratory disease in Tucker County is considered to have been tracheobronchitis, according to a semifinal report submitted to the state department of health by the U. S. Public Health Service. A total of 27 cases was reported from the area, the first in February and the last one in June. The disease, which has been sporadic, has affected only infants and children. The 4 deaths occurred in children under 2 years of age. According to Dr. Newman H. Dyer, state health commissioner, a similar type of disease has been found during the past year in Mineral County, and in Cumberland, Md.

WISCONSIN

Form Public Health Council.—The Wisconsin Public Health Council, aimed at improving public health by disseminating public health information and encouraging the development of adequate public health services throughout the state, was formed May 12. It comprises forty-five citizens under the temporary chairmanship of William J. Deegan, city manager of Superior. The new organization will not duplicate existing agencies, but will be representative of all organized groups and individuals whose interest involve health.

Anesthesiologists to Meet.—The Wisconsin Society of Anesthesiologists invites all doctors in Wisconsin to a series of four panel discussions on the autonomic nervous system as it is concerned in all surgical operations, September 19, in the auditorium of the Service Memorial Institute, Madison. The last twenty or thirty minutes of each hour will be used for questions from the floor. There is an advance registration fee of $1; residents in hospitals are invited without fee but are requested to make their reservations in advance. Information may be obtained from Dr. William Kreul, 811 Main Street, Racine.

WYOMING

Annual State Medical Meeting.—The Wyoming State Medical Society will hold its annual meeting September 1-3 at the Connor Hotel and the Wyoming Union Building, Laramie, under the presidency of Dr. Emory W. DeKay, Laramie. Guest speakers include:

John B. Grow, Denver, Exploratory Thoracotomy in Obscure Intrathoracic Disease.
B. Marden Black, Rochester, Minn., Status of Goitrogenic Drugs, Radioiodine and Surgery in Treatment of Diseases of the Thyroid Gland.
Ward Darley, Denver, Diagnosis of the Active Rheumatic State.
Harold S. Morgan, Lincoln, Neb., Management of Breech Presentation.
Constantine F. Kemper, Denver, Changing Concepts About Diabetes Mellitus.
George F. Lull, Chicago, Secretary and General Manager, American Medical Association.
Ralph M. Stuck, Denver, Management of Head Injuries in General Practice.
Robert Ward, New York, Poliomyelitis—Distribution of Virus and Pathways of Spread.
Benedict J. Duffy, Rochester, N. Y., subject to be announced.

The Woman's Auxiliary will meet September 1-2 in conjunction with the state association.

PUERTO RICO

Number of Puerto Rico Doctors.—According to the Medical Association of Puerto Rico, a total of 190 Puerto Rican medical students have received free scholarships from the Insular Government to study in the United States and Mexico. Thirty-four of these students will receive their doctor's certificates this year. There are 752 doctors in active service in Puerto Rico, of whom 61 are foreigners who are practicing with special licenses. The new doctors will serve in government institutions for a period of five years.

Hospital Construction Program.—The U. S. Public Health Service has approved the hospital construction program, thus permitting Puerto Rico to take advantage of federal funds for this purpose. In addition to the construction to be undertaken with federal and insular funds, the Government of Puerto Rico has already under construction eighteen municipal hospitals and thirty public health units. While the Island has the necessary funds to take care of the hospital construction program during the next two years, operating expenses of the program will prevent Puerto Rico from taking advantage of federal appropriations for the program after the first two years of the five years contemplated in the construction already planned. It is estimated that for each bed provided the insular government will have to expend $1,500 annually for maintenance.

GENERAL

Reclaiming Used Gauze Sponges.—The Hospital Bureau of Standards and Supplies, Inc., has issued a report on "Reclaiming Used Gauze Sponges" by Dewey H. Palmer, research director. The seven page mimeographed report may be obtained from the Research Department, Hospital Bureau of Standards and Supplies, Inc., 247 Park Avenue, New York 17, for 50 cents.

Tuberculosis Death Rate at New Low.—According to the National Tuberculosis Association, the tuberculosis death rate in the United States reached a new low of 33.2 per 100,000 population in 1947. The increase in the number of new cases was credited to improved case-finding methods. The number of reported deaths from tuberculosis dropped below 50,000 for the first time with 47,636 deaths as compared with 50,911 in 1946.

Medical Illustrators' Meeting.—The Association of Medical illustrators will hold its third annual meeting in Chicago, September 27-30, at the Sheraton Hotel. The association, founded in 1945 in Chicago, is under the presidency of Mr. Willard C. Shepard, medical art director at W. B. Saunders Company. The first Brödel Memorial Lecture will be given at the annual banquet September 27 by Barry J. Anson, Ph.D., Northwestern University Medical School, Chicago.

Tuberculosis Sanatorium Directory.—The National Tuberculosis Association has issued its 1948 "Tuberculosis Sanatorium Directory" listing 830 institutions with 120,496 beds for patients with tuberculosis. Seventeen institutions with 2,940 beds are located in Alaska, Hawaii and Puerto Rico. Exclusive of beds in state mental and penal institutions, the total number available in 1947 was 99,179, an increase of 1,453 beds since 1942, when the last directory was published.

Association of Nurse Anesthetists.—The fifteenth annual meeting of the American Association of Nurse Anesthetists will be held in Atlantic City, N. J., September 20-23, with three general sessions emphasizing the clinical, theoretical and professional aspects of anesthesia. Speakers will include: Dr. Albert Faulconer, Rochester, Minn.; Dr. Alfred Blalock and

Miss Olive Berger, Johns Hopkins Hospital, Baltimore; Dr. Esther M. Greisheimer, Temple University School of Medicine, Philadelphia; Dr. Vincent P. J. Collins, Doctors' Hospital, New York, and Emanuel Hayt, attorney-at-law, New York.

Mortality Rate Remains Low.—According to the Institute of Life Insurance, New York, the health record among U. S. life insurance policyholders during the first half of this year has continued at or near the record low of last year. During the first six months tuberculosis has continued to decline to 40 per cent under that of ten years ago. The 1948 improvement in all major childhood diseases except measles over last year's record low brought the rate to a level of about one fifth that of ten years ago. The influenza death rate is well under last year's and about one third of that ten years ago. Only deaths due to heart disease and cancer show increases.

Human Genetics Society of America.—This recent organization aims to bring into closer contact investigators interested in human genetics and to deal with related problems. The membership at present is about 250, drawn from the fields of anthropology, child development, genetics, immunology, medicine, psychology, sociology, statistics and others. The president for 1948-1949 is Hermann J. Muller, D.Sc., Bloomington, Ind. The society will hold its first meeting at Washington, D. C., September 11-13. Information relative to membership may be obtained from the secretary, Herluf H. Strandskov, D.Sc., Department of Zoology, University of Chicago, Chicago 37.

Instructors of Medical Record Library Science.—The American Association of Medical Record Librarians will sponsor an institute for instructors in medical record library science October 13-16, in Los Angeles, if enough instructors are interested. Applicants other than present instructors must meet the following requirements: age, 23 to 45 years; college or university degree; graduation from an approved school for medical record librarians, and at least two years' medical record library experience. Tuition for others attending will be $25. Information may be secured from Mrs. Edna K. Huffman, American Association of Medical Record Librarians, 22 East Division Street, Chicago.

Society Elections.—The New England Dermatological Society has elected Dr. Francis M. Thurmon, Boston, president; Dr. G. Marshall Crawford, Brookline, Mass., secretary, and Dr. Mildred L. Ryan, Brockton, Mass., treasurer.——At the meeting of the American Society for the Study of Arteriosclerosis, Dr. William B. Kountz, St. Louis, was elected president; Dr. Otakar J. Pollak, Quincy, Mass., secretary-treasurer. The next annual scientific meeting will be held October 31-November 1 at the Hotel Knickerbocker, Chicago.——At the recent meeting of the Central Surgical Association, Dr. Henry K. Ransom, Ann Arbor, Mich., was installed as president; Dr. J. Dewey Bisgard, associate professor of surgery at the University of Nebraska College of Medicine, Omaha, president-elect; Dr. Walter G. Maddock, Chicago, secretary, and Dr. James T. Priestley, Rochester, Minn., treasurer.

Roentgen Ray Society Meeting.—The American Roentgen Ray Society will hold its annual meeting at the Palmer House, Chicago, September 14-17, under the presidency of Dr. Lawrence Reynolds, Detroit. The program includes a roundtable discussion of Bronchogenic Carcinoma and symposiums on the Diagnostic, Roentgenographic and Surgical Aspects of Congenital Heart Disease; Diagnosis and Treatment of Diseases of the Chest and Group Consultation; the Intensification of the Roentgenoscopic Screen Present Day Roentgenoscopes and Their Deficiencies and Advances in Radiology. Other papers will be presented by speakers from throughout the country. The Caldwell Lecture will be presented by Dr. Byrl R. Kirklin, Rochester, Minn., on "Graduate Education in Roentgenology." The annual banquet will be held Thursday evening.

Changes in Board of Obstetrics and Gynecology.—The American Board of Obstetrics and Gynecology in annual session in Washington, D. C., May 16-22, elected Dr. Walter T. Dannreuther, New York, president, and Dr. Paul Titus, Pittsburgh, secretary-treasurer. Dr. Daniel G. Morton, San Francisco, was appointed to fill the unexpired term of Dr. Edward A. Schumann, Philadelphia, representing the American Gynecological Society, and Dr. Robert A. Kimbrough Jr., Philadelphia, the unexpired term of Dr. Ludwig A. Emge, San Francisco, representing the Section on Obstetrics and Gynecology of the American Medical Association. The board at the examination meeting certified 231 candidates. A number of changes in board requirements and regulations were made. New bulletins are now available for distribution on application and give details of all new regulations. These relate both to candidates and to hospitals conducting residency services for training. Foremost are the following: 1. The ruling that applicants must receive adequate training in both obstetrics and gynecology has been defined as meaning a minimum of six months, full time, in the branch of either obstetrics or gynecology relegated to a minor role in a candidate's training and preference for practice. 2. Acceptable preceptorship training is defined. 3. The present regulation requiring at least six months of practice in the specialty following the completion of an acceptable training period has now been extended, effective Dec. 31, 1949, to a requirement of two years post-training practice limited to the specialty. 4. Specific requirements for approval of hospital services for residency training are outlined. 5. Effective immediately, there will be no further temporary approvals of hospital services for residency training. All future approvals will be based entirely on inspection following application. It is expected also that certain resurveys will result in withdrawal of present residency approval from institutions where the educational and training standards are not being maintained. The next scheduled examination (Part I), written examination and review of case histories, for all candidates will be held in various cities of the United States and Canada on Friday, Feb. 4, 1949. Applications may be made until Nov. 1, 1948. Application forms and bulletins are sent on request made to American Board of Obstetrics and Gynecology, Inc., 1015 Highland Building, Pittsburgh 6, Pa.

FOREIGN

Great Britain

Arthritis Aid Units.—The Canadian Press reports that Lord Horder, physician to the King and a leader of the war on arthritic diseases, has planned a squad of two hundred mobile physical therapy units to carry the latest treatment to every small town in England. There will be two fully trained physical therapists to each truck. Trained operators of the electrical equipment have been traveling in Britain for more than a year in twelve trucks.

Germany

Max Planck Society.—*The New York Times* reports that a new German scientific association called the Max Planck Society for Advancement of Science has been founded with Dr. Otto Hahn, Nobel Prize winner who first split the uranium atom, as head. The society will take the place of the Kaiser Wilhelm Institute, which once sponsored more than fifty research associations but was dissolved by the Allied Control Council in 1946. Complete freedom of research has been guaranteed, subject only to the council's prohibition of military research. Ten other Nobel Prize winners have joined Dr. Hahn in founding the new society.

CORRECTION

"Demerol."—In the abstract "'Demerol' and Opium Alkaloids in Biliary Spasm," in THE JOURNAL, July 24, 1948, page 1163, the last sentence should read "as the pain is due to biliary obstruction other than spasm relief will not be afforded by the nitrites; morphine or meperidine may be given for the relief of this type of pain." In the abstract the last part of this sentence had been deleted.

Marriages

HARRY RANDOLPH HULL NICHOLAS III, Flanders, N. J., to DR. MARGARET HASLET DOYLE of Brooklyn in Bay Ridge, N. Y., June 3.

RALPH ULYATE WHIPPLE, West Englewood, N. J., to Miss Joan Dorothy Hopkins of Maidenhead, England, May 8.

ROBERT BIRCHALL, Port Washington, N. Y., to Miss Anne Lancaster Tinsley of Spartanburg, S. C., May 24.

KAM-FAI CHAN to Miss Lau-Chun Kwan, both of Hong Kong, China, in New York in June.

ROBERT EMMET GORDON, Brooklyn, to Miss Jeanne Frances Dillon in Newburgh, N. Y., June 5.

GRAHAM ALEXANDER VANCE, Bristol, Tenn., to Miss Martha Gordon Miller of Chicago, June 5.

ALEXANDER J. MOZZER, New York, to Miss Ann Kuczynski of Northampton, Mass., June 19.

ALFRED JOSEPH COLE, Baltimore, to Miss Roselda Katz of Shaker Heights, Ohio, June 22.

RICHARD P. KEATING, New York, to Miss Barbara Nogas of East Hampton, Conn., June 12.

WILLIAM PRICE GIVEN, New York, to DR. PHYLLIS CASSEDY, in Newburgh, N. Y., May 8.

Deaths

Samuel McClintock Hamill ✦ died at his home in Philadelphia, May 3, aged 83, of cardiac failure. Dr. Hamill was born in Oak Hall, Pa., Nov. 3, 1864. He was graduated from Princeton and then was graduated from the University of Pennsylvania Department of Medicine in 1888. In 1892 he joined the faculty of the University of Pennsylvania and from 1901 to 1919 was professor of diseases of children at the old Philadelphia Polyclinic and College for Graduates in Medicine and at the University of Pennsylvania Graduate School of Medicine, 1919-1920. A specialist certified by the American Board of Pediatrics, Dr. Hamill was past president of the American Pediatric Society, the American Child Health Association of which he had been for many years member of the executive committee, the American Association for the Study and Prevention of Infant Mortality and of the Philadelphia Child Health Society. He was a founder and past president of the American Academy of Pediatrics and of the Philadelphia Pediatric Society, which presented him in 1933 with a medal for notable service and achievement in the field of child health. He was the first chairman of the section on pediatrics of the Medical Society of the State of Pennsylvania and in 1911 was chairman of the Section on Diseases of Children of the American Medical Association. In 1919 he was chosen one of three delegates from the United States to the International Conference on Public Health and Child Welfare in France. Dr. Hamill served in 1930 as chairman of Section I on Medical Service of President Hoover's White House Conference on Child Health and Protection. From 1933 to 1939 he was chairman of the Pennsylvania State Emergency Child Health Committee, and in 1936 the Medical Society of the State of Pennsylvania presented him with an illuminated manuscript in recognition of this service. The Philadelphia County Medical Society in 1939 conferred on Dr. Hamill the Strittmatter Award. He was a fellow of the College of Physicians of Philadelphia, a member of the Pathological Society of Philadelphia, Neurological Society of Philadelphia, Mental Hygiene Committee of Public Charities Association of Pennsylvania and the mayor's milk commission of Philadelphia. During 1917 and 1918 he was a member of the general medical board of the Council of National Defense, chairman of its National Child Welfare Committee, director of child welfare for the state of Pennsylvania and chief of the division of child hygiene of the Pennsylvania State Department of Health. Dr. Hamill was on the staff of St. Christopher's Hospital for Children, chief of pediatric departments of the Howard Hospital, Philadelphia Polyclinic Hospital and the Presbyterian Hospital, where he was consulting pediatrician. He was a member of the board of managers of the Babies' Hospital and board of directors of the Philadelphia Child Guidance Clinic, a former chairman of the health department, Council of Social Agencies, Welfare Federation of Philadelphia, vice president of Philadelphia Social Service Exchange and member of the Charities and Welfare Committee of the Philadelphia Chamber of Commerce. At one time Dr. Hamill was a member of the board of trustees of the Lawrenceville School and the Oak Lane Country Day School. In 1928 and 1929 he was president of the Society of the Alumni of the Medical Department of the University of Pennsylvania. In 1940 he was awarded the Doctor of Science degree from the University of Pennsylvania, and in 1941 the alumni award of merit.

Millard Knowlton ✦ Hartford, Conn.; born in Colfax County, Neb., Feb. 18, 1875; Medical College of Indiana, Indianapolis, 1905; at one time participated in the tuberculosis control program for the New Jersey State Department of Health; received public health degree from Harvard-Massachusetts Institute of Technology School of Public Health; served with the U. S. Public Health Service Reserve; during World War I assigned to venereal disease control work in this country; other assignments included work with the Kansas State Board of Health and duty in Montana; did venereal disease control work in North Carolina from 1919 to 1921 and from there was detailed to Veterans Bureau until 1923; on April 1, 1923 came to the Connecticut State Department of Health as director of the bureau of preventable diseases, where he remained until his retirement in 1946; fellow of the American Public Health Association and a past president of the Connecticut Branch of the Society of American Bacteriologists; member of the Connecticut Public Health Association, American Society for the Advancement of Science and the American Epidemiological Society; died in St. Francis Hospital May 4, aged 73, of coronary thrombosis.

Marshall Peterson Gordon Jr., ✦ Richmond, Va.; born in Richmond, Oct. 26, 1904; University of Virginia Department of Medicine, Charlottesville, 1927; interned at the Johns Hopkins Hospital in Baltimore, where he served a residency; interned at the University of Virginia Hospital in University; assistant professor of urology at the Medical College of Virginia and urologist for the hospital division of the college; specialist certified by the American Board of Urology; member of the American Urological Association and the Richmond Academy of Medicine; served in the medical corps of the U. S. Naval Reserve during World War II; on the staffs of the Retreat for the Sick, Stuart Circle, St. Elizabeth's and Sheltering Arms hospitals; died May 10, aged 43, of coronary thrombosis.

Grant Orante Favorite ✦ Haddonfield, N. J.; born in Ortucchio, Italy, June 20, 1903; Hahnemann Medical College and Hospital of Philadelphia, 1927; associate in bacteriology and immunology at Jefferson Medical College in Philadelphia; served as professor of bacteriology at his alma mater; member of the American Society of Clinical Pathologists; fellow of the American College of Physicians; during World War II a major in the medical corps of the Army of the United States from September to November 1942; on the staff of the West Jersey Hospital in Camden, where the Grant O. Favorite Research Laboratory was established and named in his honor; died May 4, aged 44, of heart disease.

James Madison Batchelor, Waveland, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1895; at one time associate professor of clinical surgery at his alma mater; for many years practiced in New Orleans, where he was formerly president and professor of surgery at the Loyola Post-Graduate School of Medicine, superintendent of public health and chairman of the board of health for the parish of Orleans and city of New Orleans, consultant for the city board of health and on the staffs of Presbyterian and Charity hospitals; died in Baptist Hospital, New Orleans, May 17, aged 77, of complications following injuries received in a fall.

Wesley Emmet Gatewood ✦ Portland, Ore.; born in Stockport, Ohio, March 7, 1891; Rush Medical College, Chicago, 1915; associate clinical professor of medicine at the University of Oregon Medical School; specialist certified by the American Board of Internal Medicine; member of the North Pacific Society of Internal Medicine and the Portland Academy of Medicine; formerly on the faculty of the State University of Iowa College of Medicine in Iowa City; served overseas during World War I; on the staffs of the Portland Sanitarium and Hospital, Emanuel Hospital and the Multnomah Hospital; died May 23, aged 57, of coronary thrombosis.

Heywood Hill Hopkins ✦ Rochester, N. Y.; born in Thomasville, Ga., Sept. 13, 1896; Harvard Medical School, Boston, 1922; instructor in orthopedic surgery at the University of Rochester School of Medicine and Dentistry; specialist certified by the American Board of Orthopaedic Surgery, Inc.; member of the Rochester Academy of Medicine and the Rochester Pathological Society; affiliated with the Veterans Administration Hospital and the Memorial Hospital in Bath, the Genesee Hospital, Monroe County Hospital and the Strong Memorial Hospital; died May 13, aged 51, in an airplane accident.

John Falconer Sinclair ✦ Philadelphia; born in Orange, N. J., Feb. 18, 1871; University of Pennsylvania Department of Medicine, Philadelphia, 1897; emeritus professor of pediatrics at the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; specialist certified by the American Board of Pediatrics, Inc.; past president of the Philadelphia Pediatric Society; member of the American Academy of Pediatrics; one of the founders and formerly medical director of Babies' Hospital; served on the staff of Presbyterian Hospital; died May 11, aged 77, of arteriosclerosis and rheumatic heart disease.

William Schroeder Jr., Northport, N. Y.; born in Brooklyn, June 4, 1879; Long Island College Hospital, Brooklyn, 1901; member of the American Medical Association; fellow of the American College of Surgeons; served overseas during World War I and later with the Fourteenth Infantry of the Brooklyn National Guard; formerly chairman of the sanitation commission of New York City and commissioner of the department of hospitals; affiliated with Cumberland, Coney Island, Prospect Heights and Caledonian hospitals, Brooklyn; died May 1, aged 68, of coronary sclerosis.

Henry Hervey Abegg, Dougherty, Iowa; State University of Iowa College of Medicine, Iowa City, 1898; member of the American Medical Association; died May 11, aged 74, of heart disease and cirrhosis of the liver.

Nathan Addelson, Brookline, Mass.; Tufts College Medical School, Boston, 1908; died April 30, aged 66, of cerebral thrombosis.

Carlton Stewart Allen, Los Angeles; University of Southern California School of Medicine, Los Angeles, 1909; member of the American Medical Association; served during World Wars I and II; for many years assistant medical director of the state department of unemployment; died May 4, aged 63, of myocarditis.

Charles Edgar Allen Jr., ✠ Baton Rouge, La.; Louisiana State University Medical Center, New Orleans, 1936; medical director of the Louisiana division of the Esso Standard Oil Company; member of the staffs of Baton Rouge General Hospital and Our Lady of the Lake Sanitarium, where he died May 17, aged 43, of polycystic kidney disease.

Thomas Jefferson Andrews, Fairbury, Neb.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1882; died in Lincoln April 10, aged 96, of cerebral hemorrhage.

John William Harmon Beach, Arlington, Ohio; Fort Wayne College of Medicine, 1898; member of the American Medical Association; served during World War I; died May 13, aged 75, of carcinoma.

Harry Hallowell Bowles ✠ Summit, N. J.; University College of Medicine, Richmond, Va., 1909; fellow of the American College of Surgeons; served during World War I; for many years chief of staff of Overlook Hospital, where he resigned in 1946 and became consulting surgeon; died May 29, aged 63, of coronary thrombosis.

Thomas Patrick Boyle, Newark, N. J.; Baltimore Medical College, 1902; served during World War I; formerly on the staffs of St. James' Hospital and Babies' Hospital, Coit Memorial; died May 17, aged 71, of coronary occlusion.

Edward Pliny Brewer, Miami, Fla.; Dartmouth Medical School, Hanover, N. H., 1879; died May 10, aged 88, of senility.

John Cabot, Weehawken, N. J.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1886; at one time affiliated with the Roosevelt Hospital and Vanderbilt Clinic in New York; died May 12, aged 93, of chronic nephritis and arteriosclerosis.

Alexander Carlyle Cameron, Erie, Pa.; University of Pittsburgh School of Medicine, 1911; died May 9, aged 63, of rupture of right subclavian artery.

Alfred Cornwell, Bridgeton, N. J.; Jefferson Medical College of Philadelphia, 1894; died May 27, aged 77, of gastric carcinoma.

Ersom Mills Cunningham ✠ Cassopolis, Mich.; Medical College of Indiana, Indianapolis, 1892; past president of the Cass County Medical Society; for many years on the staff of the Lee Memorial Hospital, Dowagiac, Mich., where he died May 13, aged 80, of cerebral hemorrhage.

Nelson Lloyd Deming, Daytona Beach, Fla.; Columbia University College of Physicians and Surgeons, New York, 1893; died May 1, aged 80, of coronary thrombosis.

William Devitt ✠ Allenwood, Pa.; Medico-Chirurgical College of Philadelphia, 1902; member and past president of the American College of Chest Physicians; fellow of the American College of Physicians; specialist certified by the American Board of Internal Medicine; served as president of the Pennsylvania Tuberculosis Society and the Federation of American Sanatoria; medical director of Devitt's Camp, which he founded; died May 23, aged 73, of coronary occlusion.

Fred Strayer Diefendorf, Angola, N. Y.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1898; member of the American Medical Association; for many years health officer of the town of Evans and the village of Angola; died in the Gowanda State Homeopathic Hospital, Helmuth, May 19, aged 75, of arteriosclerosis and prostatic hypertrophy.

Otto G. Draper, Chicago; Missouri Medical College, St. Louis, 1898; member of the American Medical Association; on the staff of Henrotin Hospital; died in Round Lake, Ill., May 21, aged 79, of cerebral arteriosclerosis.

Maurice Joseph Drell ✠ Seattle; University of Illinois College of Medicine, Chicago, 1940; specialist certified by the American Board of Ophthalmology; interned at the Cook County Hospital in Chicago; he served a residency in ophthalmology at the University of Chicago Clinics; affiliated with Harborview and Virginia Mason hospitals; died May 20, aged 30, of cardiovascular renal disease.

Frederick Warren Ellis ✠ Newton Centre, Mass.; Harvard Medical School, Boston, 1881; an Affiliate Fellow of the American Medical Association; last original member of the American Physiological Society; member of the American Association for the Advancement of Science; died April 30, aged 91, of pulmonary tuberculosis.

Le Roy William Flóra, Anchorage, Alaska; University of Minnesota Medical School, Minneapolis, 1940; certified by the National Board of Medical Examiners; member of the American Medical Association; served as a member of the Alaska Board of Medical Examiners; killed in a plane crash June 17, aged 40.

Dwight Bailey Fuller, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1892; also a dentist; formerly member of the Common Council; member of the Association of Military Surgeons of the United States; served on the staffs of the Polyclinic and Howard hospitals; died in Philadelphia General Hospital May 16, aged 84, of intracapsular fracture of left femur, as the result of a fall, arteriosclerosis and bronchopneumonia.

James Albert Fulton, Kansas City, Kan.; College of Physicians and Surgeons, Medical Department Kansas City University, Kansas City, 1903; member of the American Medical Association; served during World War I; past president of the board of education; formerly chief medical officer of the Kansas National Guard; one of the organizers and for many years president of the Brotherhood State Bank; for forty-four years anesthetist at Bethany Hospital, where he died May 9, aged 68, of coronary disease.

James Burton Gillis, Portland, Ore.; University of Oregon Medical School, Portland, 1911; died May 13, aged 72, of carcinoma of the bladder.

Horace Gledhill ✠ Brooklyn; Jefferson Medical College of Philadelphia, 1923; on the staffs of the Methodist, Norwegian and Victory Memorial hospitals; died May 2, aged 49, of coronary disease.

John Calvin Greenfield, Avon, S. D.; Bennett Medical College, Chicago, 1898; member of the American Medical Association; died in Sioux City April 21, aged 72, of a malignant tumor.

Peter George Grimm ✠ Spirit Lake, Iowa; Rush Medical College, Chicago, 1893; served as president of the Dickinson County Medical Society; for many years county coroner and surgeon for the Chicago, Milwaukee and St. Paul Railroad; died in Spirit Lake Hospital May 14, aged 76, of heart disease.

Harry M. Harman, Frenchtown, N. J.; Jefferson Medical College of Philadelphia, 1887; also a registered pharmacist; served as mayor of Frenchtown and as member and president of the school board; on the staff of the Easton (Pa.) Hospital; died in Mount Pleasant, May 25, aged 83, of carcinoma of the prostate.

Ernest C. Harris, Sylvester, Ga.; Atlanta College of Physicians and Surgeons, 1913; member of the American Medical Association; served as examining physician for the Selective Service for many years; died in Piedmont Hospital, Atlanta, April 26, aged 64, of cerebral hemorrhage.

William Norris Hubbard ✠ New York; College of Physicians and Surgeons, medical department of Columbia College, New York, 1886; for many years affiliated with the Manhattan Eye, Ear, Nose and Throat Hospital; died April 21, aged 87.

Buel Latcher, Yonkers, N. Y.; Albany (N. Y.) Medical College, 1897; city health department district physician for many years; on the staff of St. John's Riverside Hospital; died in the Aurelia Osborn Fox Memorial Hospital, Oneonta, May 21, aged 73, of cirrhosis of the liver.

John Leedom ✠ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1905; associate professor of surgery at the Temple University School of Medicine; died April 24, aged 66, of acute cardiac failure.

Robert Matthew Levin, Boston; University of Vermont College of Medicine, Burlington, 1938; associated with Massachusetts Memorial Hospitals; served overseas during World War II; died in South Paris, Maine, April 30, aged 34, of coronary occlusion.

Harriet Maynard Lewis, Portland, Me.; Woman's Medical College of Pennsylvania, Philadelphia, 1884; died in the Mercy Hospital April 16, aged 91, of cerebral hemorrhage.

Louis Pard L'Homme, Lowell, Mass.; College of Physicians and Surgeons, Boston, 1919; died April 12, aged 54, of cirrhosis of the liver.

Maurice Rosenthal Lohman ✠ Fort Wayne, Ind.; University of Michigan Medical School, Ann Arbor, 1915; past president of the Indiana Tuberculosis Association; for many years president of the Allen County Tuberculosis Association; past president of the Fort Wayne and Allen County Medical Society; member of the board of directors of Irene Byron Sanatorium; died in St. Joseph Hospital April 29, aged 58, of bilateral pyelonephritis and hypertrophied prostate.

Clark Russell William Magill ✠ Chicago; University of Illinois College of Medicine, Chicago, 1924; served during World War II; on the staff of Garfield Park Community Hospital and St. Anne's Hospital, where he died May 30, aged 50, of injuries received in an automobile accident.

Horatio Richmond Marsh, Long Beach, Wash.; New York Homeopathic Medical College and Hospital, New York, 1897; member of the American Medical Association; for many years a medical missionary in Alaska; member of the fire department; died in Warrenton, Ore., May 6, aged 74, of arteriosclerosis.

Dorothy Ruth Mattingly ✦ Baton Rouge, La.; Louisiana State University School of Medicine, New Orleans, 1939; specialist certified by the American Board of Radiology, Inc.; served a residency at the Charity Hospital in New Orleans; on the staffs of Our Lady of the Lake Sanitarium and the Baton Rouge Hospital; died in Tucson, Ariz., April 23, aged 33, of hemorrhage from aneurysm of left vertebral artery.

George Wilson Terry Mills, Brooklyn; University and Bellevue Hospital Medical College, New York, 1902; member of the American Medical Association and the American Psychiatric Association; specialist certified by the American Board of Psychiatry and Neurology, Inc.; formerly medical superintendent of the Brooklyn State Hospital and the Creedmoor State Hospital in Queens Village, N. Y.; died in the Methodist Hospital May 8, aged 67, of gastric hemorrhage.

Donald Martin Norton ✦ Medford, Wis.; Marquette University School of Medicine, Milwaukee, 1926; for many years secretary of the Price-Taylor Counties Medical Society; formerly fellow in medicine at the Mayo Foundation in Rochester, Minn.; city health officer; affiliated with the Medford Clinic-Hospital; died May 5, aged 50, of carcinoma of the liver.

Walter Orthner ✦ Huntingdon, Pa.; Temple University School of Medicine, Philadelphia, 1930; formerly secretary of the Huntingdon County Medical Society; president of the board of health; on the staff of the J. C. Blair Memorial Hospital; died April 21, aged 47, of sarcoma.

Marcus Ostro ✦ Baltimore; University of Maryland School of Medicine, Baltimore, 1914; member of the Radiological Society of North America, Inc., and the American College of Radiology; specialist certified by the American Board of Radiology; on the staffs of the Johns Hopkins University Hospital and Sinai Hospital, where he died May 12, aged 58, of subarachnoid hemorrhage.

Boris Rapoport ✦ New York; Tufts College Medical School, Boston, 1914; specialist certified by the American Board of Anesthesiologists; member of the American Society of Anesthesiologists; formerly on the faculty of his alma mater; for many years chief anesthetist at the Beth Israel Hospital in Boston; since 1937 head of the department of anesthesia at the Hospital for Joint Diseases, where he died May 4, aged 59, of coronary thrombosis.

Jacob Reiner ✦ Elizabeth, N. J.; University and Bellevue Hospital Medical College, New York, 1908; past president of the Union County Medical Society; fellow of the American College of Surgeons; served during World War I; during World War II examining physician for a local draft board; city school physician; on the staff of Elizabeth General Hospital; died May 9, aged 60, of coronary thrombosis.

Francis Llewellyn Rogers, Long Beach, Calif.; State University of Iowa College of Medicine, Iowa City, 1891; member of the Long Beach Eye, Ear, Nose and Throat Society and of the Los Angeles Society of Ophthalmology and Otolaryngology; one of the founders of Seaside Memorial Hospital; died April 30, aged 83, of uremia.

Charles Compton Roosa, Buffalo; University of Buffalo School of Medicine, 1899; died in Buffalo General Hospital May 9, aged 91, of carcinoma of the bladder and mitral stenosis.

William Asbury Rourk, Myrtle Beach, S. C.; Jefferson Medical College of Philadelphia, 1924; member of the American Medical Association; served as a member of the city council and city school board; died May 18, aged 50, of coronary thrombosis.

Charles Joseph Rowan ✦ Laguna Beach, Calif.; Rush Medical College, Chicago, 1898; served on the faculties of his alma mater, State University of Iowa College of Medicine in Iowa City and the University of Southern California School of Medicine in Los Angeles; member of the American Surgical Association and Western Surgical Association; fellow of the American College of Surgeons; died in Los Angeles May 7, aged 73, of pulmonary embolism and chronic nephritis.

Robert Montfort Schley ✦ Buffalo; Hahnemann Medical College and Hospital of Philadelphia, 1902; member of the American Psychiatric Association; specialist certified by the American Board of Psychiatry and Neurology, Inc.; on the staffs of the Millard Fillmore and Edward J. Meyer Memorial hospitals; psychiatrist to Erie County Probation Department; died May 5, aged 70, of myocarditis with congestive failure.

William Jefferson Smith, Williamsburg, Ky.; University of Louisville Medical Department, 1909; died April 21, aged 65, of cerebral hemorrhage and pneumonia.

William Henry Speer ✦ Wilmington, Del.; University of Pennsylvania School of Medicine, Philadelphia, 1910; served as president and secretary of the Medical Society of Delaware; fellow of the American College of Surgeons; formerly mayor of Wilmington; served during World War I; formerly chief of staff of St. Francis Hospital; member and formerly chief of staff of Delaware Hospital, where he died May 3, aged 60, of pneumonia.

George Martin Spilka, Pittsburgh; Jefferson Medical College of Philadelphia, 1938; affiliated with St. John's Hospital; died April 4, aged 38, of pneumonia.

Carroll Mortimer St. Clair, Cambridge, Md.; Howard University College of Medicine, Washington, D. C., 1928; died in the Cambridge-Maryland Hospital April 1, aged 49, of coronary thrombosis.

George Thomas Watkins Jr. ✦ Durham, N. C.; Jefferson Medical College of Philadelphia, 1915; affiliated with the Watts Hospital; died May 11, aged 56, of coronary thrombosis.

Kenneth Johnson Wilson ✦ Oklahoma City, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1916; died April 23, aged 57, of carcinoma of the lungs.

DIED WHILE IN MILITARY SERVICE

Arthur Katz, Baltimore; Johns Hopkins University School of Medicine, Baltimore, 1942; interned at Sinai Hospital; began active duty in the medical corps, Army of the United States, in August 1943; in July 1944 went overseas with 102d General Hospital to England; promoted to captain in January 1945; killed in a vehicle accident near Bensheim, Germany, Feb. 27, 1946, aged 28, in line of duty as medical officer of 7th Army Ordnance Technical School at Heidenheim, Germany.

Fred Coleman Mackler, New York; University of Virginia Department of Medicine, Charlottesville, 1944; interned at the Harlem Hospital, where he served a residency; began active duty as a first lieutenant in the medical corps, Army of the United States, May 1, 1946; promoted to captain; died in Walter Reed General Hospital, Washington, D. C., July 30, 1947, aged 26, of glioma.

Paul James Ritchie ✦ Lieutenant Commander M.C., U. S. Navy, San Diego, Calif.; University of Southern California School of Medicine, Los Angeles, 1938; interned at California Hospital in Los Angeles; appointed a lieutenant (jg) in the medical corps of the U. S. Navy on May 16, 1938; died June 23, 1944, aged 32, when the plane in which he was a passenger crashed into the Pacific Ocean.

Benjamin Stoller, Brooklyn; New York Homeopathic Medical College and Flower Hospital, New York, 1922; began active duty as a captain in the medical corps, Army of the United States, in November 1942; died April 17, 1946, aged 50, of hypertension and coronary sclerosis.

Richard Provost Wilson ✦ Lieutenant Commander M.C., U. S. Navy, Minneapolis; Syracuse University College of Medicine, 1936; interned at the Brooklyn Hospital; appointed a lieutenant (jg) in the medical corps of the U. S. Navy on May 8, 1939; died Feb. 26, 1944, aged 31, of injuries received when the plane in which he was a passenger crashed near the Naval Air Station, Olathe, Kan.

Thurston William Laraway, Hood River, Ore.; University of Oregon Medical School, Portland, 1924; formerly health officer of the village of Elk River; major, medical corps, Army of the United States; died in the Regional Hospital, Camp Joseph T. Robinson, Ark., July 9, 1945, aged 49, of pneumonitis.

Foreign Letters

PARIS

(From Our Regular Correspondent)

June 10, 1948.

Treatment of Tuberculous Laryngitis by Tyrothricin

At one of the last meetings of the Society of the Paris Hospitals, J. Fouquet presented about 50 cases of tuberculous laryngitis treated with two to three daily injections of streptomycin. He noted an improvement in the functional disorders within two to three days, the cicatrization of the anatomic lesions within two to three weeks. Infiltrating forms are slower in responding. He has discarded local streptomycin treatment by powder or aerosols. At the same meeting, P. Bourgeois and V. Dupont presented their results of local treatment of tuberculous laryngitis by tyrothricin. They gave four daily applications of a suspension of this antibiotic, the concentration being 0.5 or 1 mg. per cubic centimeter. The authors have noted the disappearance of pain and the removal of dysphagia in 7 cases out of 7 (100 per cent); improvement of edema in 3, improvement of ulcerations in 2, inappreciable effect on vegetations and no modifications of infiltrations. The authors emphasize the advantages offered by this treatment: (1) perfect tolerance; it is superior, in this respect, to streptomycin; (2) the treatment can be given without hospitalization; (3) it is less expensive than streptomycin. The authors are of the opinion that the association or the alternate use of tyrothricin and streptomycin could procure more complete anatomic recoveries.

New Method of Melanophore Diagnosis of Pregnancy

L. Servantie and F. Moretti have just perfected a melanophore method for the diagnosis of pregnancy. This test differs from the previous methods by the following characteristics: 1. Complete hypophysectomy of the frog (Rana esculenta) under binocular lens. 2. Verification of the test animal: microscopic examination of the interdigital membrane of the posterior leg; any animal not presenting a complete contraction of melanophores is to be rejected. Although decoloration be complete after five to six hours, the authors use the animal only on the day following hypophysectomy. 3. Establishment of a melanophoric index giving an objective and quantitative measure of the melanophoric potency; a reading is made under microscope half an hour and an hour after injection of a quantity of urine equal to 0.1 per cent of its weight in the dorsal lymphatic sac. 4. Elimination of the cause of error initiated by the agonic dilation of melanophores. The reading is valid if animals survive for two hours. 5. Perfection of a simple process for the concentration of the melanophorodilator hormone in the urines, when there is a doubt. The authors have performed more than 200 tests. This test has shown itself of an absolute specificity, security and fidelity, verified from the beginning to the end of the pregnancy. The result of this test has been constantly negative in the normal man and woman, in Addison's disease and pigmentary cirrhosis. The authors have found no paradoxic reaction when varying from 5 to 8 the p_H of injected urine. Beside its specificity, this process offers the advantages of rapidity, one hour in urgency cases, and also the use of an animal easily kept in the laboratory without any special precaution.

Attempts at Reanimation After Acute Anoxemia

Professor L. Binet, Dean of the Paris Faculty of Medicine, and M. Strumza have been successful in reviving animals after cessation of the respiratory action and of the beating of the heart by means of transfusing oxygenated blood through the carotid artery. The authors have made progress in this field. Through pulmonary oxygenation and transdiaphragmatic massage of the heart, they have revived asphyxiated dogs ten, fifteen and twenty minutes after stopping of the heart, when the reanimation process was begun from two to seven minutes and forty seconds after the heart had stopped. The technic is as follows: After laparotomy, the hand is slipped above the liver and thus its back is resting on the heart; forty to sixty times a minute pressure is put on the heart, in order to maintain an arterial tension of at least 60 to 100 mm. of mercury. At the same time, an effective artificial respiration is kept up, the trachea being connected with a container of pure oxygen. The subject regularly survives when reanimation is undertaken within two minutes and thirty seconds after the heart stops; survival is frequent after three minutes and thirty seconds and possible after seven minutes and thirty seconds. When the heart has resumed beating (ten to twenty minutes of massage being necessary), recurrence of respiration always follows. Associating oxygenotherapy with massage of the heart insures a necessary minimum of oxygenation to the tissues and, especially, to nervous centers and the heart. Certain medicaments, ineffective as long as the tissues are anoxemic, regain their efficiency after artificial oxygenation; in this way, an injection of epinephrine in a heart stopped for three minutes will induce hypertension only after three minutes and fifteen seconds of massage and oxygenation. The authors emphasize that manual transdiaphragmatic compressions of the heart, associated with inhalation of pure oxygen, surpass, as a method of reanimation in asphyxia, all other procedures.

TURKEY

(From Our Regular Correspondent)

ANKARA, July 25, 1948.

Trachoma Campaign

Trachoma was endemic in the Eastern and Southeastern provinces of Turkey before the first World War and it became epidemic as the result of troop movements through Iraq, Transjordan, Syria and Palestine. In 1927 a survey sponsored by the Ministry of Health revealed that in some localities the rate of incidence was 10 to 30 per cent and in others 70 to 80 per cent. At the second national medical congress in Ankara in 1927 trachoma was a lively subject for discussion and a campaign against it was recommended. The trachoma control zone then included the provinces of Gaziantep, Urfa, Marash, Diyarbakir, Mardin, Malatya, Adana and Mersin, with the city of Gaziantep as central control station. The campaign started in 1930 with a small staff of specialists with six 100 bed hospitals and six dispensaries at their disposal; 78,620 persons, of whom more than half were in need of treatment, were examined. In 1934 there were ten 132 bed hospitals and 21 dispensaries; 87,815 persons were examined, of whom 47,105, or 53 per cent, were found infected and 1.6 per cent were blind from trachoma; treatment (eye drops) was given 2,059,786 times. In 1937 the eight provinces had units in thirty-six villages. In 1938 there were thirteen hospitals with 160 beds, and twenty-one dispensaries (patients requiring an operation remained in the hospital two to three weeks). Minor operations, curative and preventive treatment, as well as instruction concerning the prevention of trachoma, were given at the dispensaries. All operations, treatment and medicaments are free and paid for from the government budget. During 1938 of the 171,563 persons examined 111,954, or 65 per cent, were infected and 2.6 were blind from trachoma; treatment was given 4,742,661 times. In 1945 it became necessary to divide the trachoma area into two zones with control centers at Adana and Diyarbakir. In 1947 there were sixteen hospitals with 225 beds, thirty-four village units and sixty-nine dispensaries; 96,309 persons were examined; 45,311, or 55 per cent, found infected and 1.5 blind; treatment was given 6,527,455 times. At present there are

thirty-eight hospitals with 225 beds, thirty-eight dispensaries and one hundred and seven village units.

Trachoma control work is at present carried on in fifteen provinces with a population of 3,623,986. In the trachoma campaign zone 1,910,632 persons, or 47.5 per cent, are trachomatous. At present there are 49 specialists, 127 sanitary inspectors, 3 visiting nurses, 16 hospital nurses and a clerical staff of 23 employed in the trachoma campaign. In the trachoma regions from 1 to 3 per cent are in the infectious stage and from 3 to 5 per cent are blind from chronic trachoma. Seriously ill persons are admitted to the hospitals; others receive treatment at the dispensaries. The personnel of the village units is responsible for finding trachoma-infected persons in the rural communities, for providing treatment or seeing to it that they get what they require at a dispensary or hospital.

Trachoma-infected children are sent to special schools. The extermination of flies and their breeding places is given special attention, also the examination of trades people handling food or drinks. To procure an efficient personnel, courses for the training of sanitary inspectors and nurses are held in the trachoma zones. Health education is an important part of the campaign: A million illustrated pamphlets and posters have been distributed; radio talks are given; special talks are given and motion pictures shown in schools and talks and motion pictures on trachoma prevention to mothers.

The zone directors make frequent inspection tours and once a month send a detailed report to the ministry of health.

Among the new plans for 1949 conducive to the eradication of trachoma are a demand for more allocation, more means of motor transportation, more medical and other personnel, more special schools for trachoma-infected children, letters of commendation and money rewards for especially good work, new laws and regulations and securing the cooperation of the United Nation's World Health Organization. The campaign is organized and directed by the trachoma division of the ministry of health. The ministry appoints physicians, nurses, sanitary inspectors and clerical personnel, who are all of the civil service.

ITALY

(From Our Regular Correspondent)

FLORENCE, July 2, 1948.

Cancer of the Prostate

This important problem was reviewed at the recent Congress of the Italian Society of Surgery. The first speaker, Prof. E. Mingazzini, reported on the diagnosis of carcinoma of the prostate and on indications for surgical intervention; he emphasized the importance of early diagnosis and the relation between hypertrophy and cancer of the prostate. The difficulties of early diagnosis are numerous, but elements of right judgment may be drawn from accurate evaluation of subjective urinary symptoms. Disturbances of micturition, which may be associated with hypertrophy as well as with cancer, have some different characteristics: the incidence of hematuria is greater in cancer (24 per cent against 8 per cent), while urinary retention presents lower percentages in cancer than in hypertrophy. Sudden irradiating pain before and after micturition, and occurring simultaneously with various other disturbances, seems characteristic of cancer of the prostate.

Diagnostic data may be revealed by objective examination, during which four possibilities may be present: (1) little or localized changes in the lobes of the prostate, which are smooth, not indurated and not painful; under these conditions a diagnosis is impossible; (2) increase in volume of the lobes of the prostate with more or less smooth appearance but in the presence of hard nodules; the diagnosis is difficult and dubious; (3) increased volume of the lobes of the prostate in the presence of small or median nodules which are disseminated and extremely hard; the diagnosis is certain; (4) the lobes of the prostate present a woodlike, hard consistence, without definite borders; under such circumstances the diagnosis becomes simple.

The changes which must be taken into consideration are as follows: the shape (deformation may occur in 83 per cent of the cases), the surface (which will be changed in 65.5 per cent), the consistence (increased in 92.4 per cent), pain (almost always present on palpation in the cancerous zone), and the border (uncertain in 50 per cent of the cases). The many tests which may be carried out to evaluate the clinical picture, such as examination of the urine, renal function tests and tests for eosinophilia, are of little value. Cystometric studies may be of doubtful value. Among the roentgenographic studies only vesiculography may furnish reliable data.

The chemical tests, such as Abderhalden's reaction, and those of Fuchs and Freund and Kaminer, may offer doubtful data; that applies also to studies of phosphatase; in cancer without metastasis, the phosphatase is normal or little increased; in cancer with metastasis the increase of phosphatase is considerable.

The disadvantage of biopsy is that it is difficult if puncture instruments are used.

Professor Mingazzini said that profound disagreement divides various authors on the question whether or not cancer of the prostate may be operable. Statistics show that the number of patients with operable cancer is limited. Young operated on 24 patients during a period of twenty-one years. Crevy operated on 3 of 275 patients whom he had seen in the course of seven years. Berringer carried out surgical intervention in 16 of 235 cases. In cases in which the tumor is associated with hypertrophy there is more ample indication for intervention.

In cases of circumscribed or localized tumors, removal is the method of choice, and preferably by the perineal route. All other types of treatment, such as endoscopic resection, ligature of the excretory ducts of the testicles, castration and the application of radium or roentgen rays were of little help.

The second part of the subject, hormone therapy of the cancer of the prostate, was reported on by Dr. Musiani. The estrogenic substances most frequently used are synthetic products: diethylstilbestrol, hexestrol and dienestrol. The last one is more effective than the two others and is particularly suitable for the treatment of recurrences. The estrus-producing compounds may be administered orally, subcutaneously or, better, intramuscularly.

The initial doses vary from 10 to 20 mg. per day, by mouth, until improvement is obtained; then maintenance treatment should be carried out with 0.25 mg. per day, continued without interruption. Immediate success may be obtained in 51 per cent of the cases, but the treatment should be considered only as a palliative, since recurrences are observed in a great number of cases over a period varying from eight months to two years. The improvement which may be obtained consists in the rapid disappearance of pain from metastasis, in the reduction of the primary tumor and improvement of the general condition.

Treatment with hormones brings about a degeneration of the cancerous epithelium not only in the primary tumor but also in the metastasis in the lymph nodes; changes in metastasis of bones can be demonstrated on roentgenographic examination in only 9 per cent of cases.

Adenocarcinoma seems to be the type of tumor which may be benefited best by hormone therapy. The majority of authors prefer combined treatment (orchiectomy associated with administration of estrus-producing compounds), because by this procedure the main source of the androgens may be removed.

Correspondence

THE TERMINOLOGY OF SOMATIC CHANGES ACCOMPANYING EMOTIONAL STATES

To the Editor:—A number of considerations have convinced us of the need for a specific term to denote certain bodily changes resulting from emotional disturbance. We have already proposed (THE JOURNAL **132**:1053, 1946) the term "emotogenic" to designate alterations in gastric function which may occur in association with affective states unrelated to the taking or conscious thought of food. In the present communication we will discuss the origin of this term and some of its broader uses and implications.

Our attention was first drawn to this problem when, in going over the literature on the effect of emotions on gastric secretion, we became aware that there is no way of knowing, when a paper bears the term "psychic effects" in its title, whether it deals with "appetite" secretion or emotionally conditioned secretion.

The stimulation of gastric secretion by emotional states acting over the vagal pathway is often termed a type of "psychic" secretion. Had not this term already been applied to another definite physiologic phenomenon there would be no objection to such usage. However, the term "psychic" secretion has become firmly rooted in physiologic literature as a designation for the secretion of gastric juice by the vagal reflex mechanism in which the sight or thought of food (in the presence of appetite) is the stimulus. This is the original sense in which the term was used by Pavlov.

After it had been demonstrated that gastric secretion in response to sham feeding could occur in the absence of the cortex, it was proposed that the term "cephalic" phase of gastric secretion be used to designate secretion which occurred in response to stimuli acting in the region of the head. The latter term includes, then, the psychic and appetite secretion of Pavlov as well as any secretion which may occur when stimuli (food) act in the region of the head but in the absence of cortical participation. Secretion occurring in association with emotional states cannot be considered a type of cephalic secretion, since the latter is a phase of digestive secretion, whereas an emotional secretion is not. The conventional classification of gastric secretion may then be presented in slightly revised form as follows:

I. Interdigestive period:
   1. Interdigestive or "continuous" phase (occurring in the absence of any known stimulus)
   2. Emotional phase
II. Digestive period:
   1. Cephalic phase
   2. Gastric phase
   3. Intestinal phase

In our psychosomatic studies on patients with peptic ulcer, we find that we can sometimes spend all morning exploring various aspects of the patient's history or his present environmental stresses without getting a "rise" out of his stomach, until finally he begins looking at his watch and trying to twist his head around to see how the kymographic tracing is progressing. If a period of gastric activity ensues, we are not certain whether it is "psychic" in that the conversation in itself, or the subject matter, has made him resentful, or whether it is "psychic" in the pavlovian sense due to the proximity of the lunch hour.

In view of these problems, we were led to adopt the term "emotogenic" to designate changes in motility and secretion accompanying affective states. Two further examples will suffice to illustrate the need for, and the use of, this term.

A decrease in gastric secretion associated with distaste or disgust for food which has an unpleasant odor or appearance is a "psychic" inhibition, whereas a decreased secretion associated with sorrow, or fear, or any emotion not related to food, is an "emotogenic" inhibition.

The second example involves a more finely drawn distinction. A period of elevated motility and secretion while a patient is sleeping is always of interest to us in view of the possible association with a dream. We always awaken the patient during or immediately after such a period to ask him whether he was dreaming, and if so, what the content of the dream was. Occasionally the dream concerns food and the question arises whether the gastric activity is psychic, i. e., associated with the thought of food, or whether it is emotogenic, i. e., associated with an unconscious emotional conflict symbolized by food. Obviously, a dream of eating may be experienced by a person who has no emotional conflict relating to or symbolized by food or eating. A person who does not get enough to eat is constantly preoccupied during his waking moments with thoughts of food; if he dreams of food, it is most likely a carry-over of his conscious thoughts. In this case, an increase in gastric activity during the dream would most reasonably be considered "psychic."

But, in working with ulcer patients we are dealing with the possibility raised by Alexander's theory; namely, that a dream of eating may be a symbol of the unconscious wish to be fed. Such a dream seemingly has no relation to the conscious thought of, or desire for, food because the ulcer patients under our observation are getting three meals and three interval feedings. Yet the conscious factor may enter in; ulcer patients are usually on a restricted diet and often express a longing for a juicy steak (fried in onions, as a rule). It may be that the nature of the food dreamed about might offer a clue as to whether an associated increase in gastric activity is psychic or emotogenic.

O. S., a 39 year old salesman with a ten year history of duodenal ulcer, had been boarded out with relatives at the age of 7, following the death of his mother. Throughout his childhood and adolescence he was tolerated, not loved. Of those years he has many bitter recollections, few pleasant ones.

During a motility and secretion study, while the patient was asleep a brief period of gastric activity occurred. On being awakened, the patient related a dream of a man in a white uniform tending a fruit stand at a busy intersection. The "busy intersection" is a well chosen symbol of our laboratory, and the significance of the "man in white" dispensing food seems obvious. Since fruit is not what a hungry man generally pictures when he thinks of eating, and since this patient professed no particular yearning for fruit, it may be that the food in this dream symbolizes the emotional conflict situation postulated by Alexander. If so, and if the observed gastric activity was indeed related to the dream, one might interpret this as an emotogenic hyperactivity of the stomach.

We have given due consideration to the applicability of the existing term "psychogenic" to the phenomena described, but there are two objections. First, such nomenclature is not specific for the physiologic processes concerned. That is, "psyche" refers to the mind or mental processes; whence arises the second objection; namely, that the word "psychogenic" carries the erroneous and unwelcome implication that there is a derangement of the mind or that the symptoms are "in the mind," i. e., are "imaginary."

By contrast the term herein proposed recognizes and gives credence to a symptom or physiologic aberration and places its origin squarely in the sphere of the emotions. Thus, we speak of emotogenic vomiting, emotogenic diarrhea, pain due to emotogenic dyssynergia of the colon, and so on. With this terminology, the inaccurate and clinically distasteful combining forms "psycho-" and "neuro-" not only are circumvented but are replaced by a precise nomenclature.

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MEDICOLEGAL ABSTRACTS

Evidence: Party's Right to Continuance if Expert Witness Cannot Be Present.—The plaintiff sued for damages for personal injuries following a collision between an automobile operated by the plaintiff and a station wagon operated by the defendant. From a judgment for the plaintiff, the defendant appealed to the Supreme Court of Appeals of Virginia.

The defendant's main assignment of error on appeal concerned the action of the trial court in refusing to grant a continuance on the defendant's showing that his only expert witness would not be able to be present at the trial. The plaintiff, who before the accident was strong, healthy and brilliant, sustained substantial and permanent injuries, among which was a serious impairment of mental powers. The defendant's attorney employed a brain specialist to examine the plaintiff and later testify for the defendant as an expert witness. Furthermore, because of the extremely technical nature of brain injury cases, the defendant's attorney also planned to use the expert as a consultant during the trial to advise him in the cross examination of the plaintiff's experts. One week before the day set for the trial, this expert advised the defendant's attorney that he had made arrangements to leave Norfolk in five days for a vacation in Mexico City and would not return for about six weeks. The attorney said that he would try to obtain a continuance but that, failing to obtain it, he would not be willing to excuse him because he needed his help too much. In other words, if the court would not grant a continuance, the attorney said that he would have a subpoena issued to assure the expert's presence. The trial judge refused to grant a continuance and, in addition, advised the expert that he would not take disciplinary action against him if he failed to obey the subpoena.

When a litigant seeks the opinion and aid of an expert in a trial, said the Supreme Court, the relationship between the parties is different from that of an ordinary witness summoned to testify to some pertinent fact known to him. In the former case the duty of the witness to attend the trial and give testimony, or otherwise aid the litigants, is created by contract. In the latter case the duty of a witness to attend the trial and testify is a duty created by law and arises out of necessity in the administration of justice. A witness of either class, however, when properly served with a subpoena must attend the trial or be subject to punishment for contempt of court.

When the defendant's expert notified the attorney of his desire to be absent from Norfolk on the day of the trial, continued the Supreme Court, the attorney immediately moved the court for a continuance on the ground of such expected absence. This motion was overruled. Two days later the expert requested the court to excuse him from attending the trial, which request was granted over the objection of the defendant's attorney. The trial court held in effect that it was more important for the expert to take his vacation than it was for the defendant to have the benefit of his expert testimony and aid at the trial, an issue, said the Supreme Court, which should have been left to be settled between the attorney and the expert.

The plaintiff was demanding that defendant pay her $75,000. She was prepared to back this demand with the force of the testimony of seven physicians, each of whom later emphasized some particular phase of her disability. The defendant's attorney did not know at the time he made the motion just what the seven physicians would state. He did know that they were witnesses for the plaintiff and that they would testify on every phase of her distressing condition. He was not a brain specialist. He needed the aid of a medical expert to help him analyze the testimony of the physicians introduced by the plaintiff in order to cross examine them intelligently. This aid the expert could have given, in addition to giving the jury the benefit of an expert opinion on the plaintiff's condition stated from the defendant's point of view. In these circumstances, said the Supreme Court, the defendant's attorney could not state with any degree of accuracy the probable testimony of his expert. Indeed, the expert himself did not know what his opinion would be, as it depended on the result of his examination of the plaintiff and the history of her case as it would be outlined by the plaintiff's witnesses. His opinion might have been in accord with the views of the plaintiff's physicians, but he might have stated it in such language as would have tended to reduce the amount of compensation to which the jury believed the plaintiff was entitled. Regardless of the value or the weight which the jury might have given to his testimony, the defendant was entitled to have the jury weigh the opinion of the well known and reliable medical expert employed by him. While the evidence does not disclose that the defendant's attorney made an express promise to pay the expert a specific sum for his opinion and aid at the trial, the statements of the defendant's attorney and the letters of the expert to him clearly reveal that the attorney engaged him soon after the action was instituted, consulted him from time to time and had every reason to expect the expert's aid and cooperation throughout the trial.

There is not a scintilla of evidence which tends to support the conclusion that the motion for continuance was made for the purpose of delaying the trial. The decision of the trial court in granting the expert's request to be excused was prejudicial to the defendant in that it deprived him of the opportunity to present to the jury the testimony of the only expert witness the defendant had engaged and who, he had every reason to believe, would cooperate and aid him in the trial. The plaintiff, said the court, is entitled to substantial compensation, but in ascertaining the amount it was and is the duty of the trial court to give the defendant a fair opportunity to present the views of a medical expert employed by him. This was not done. The Supreme Court therefore reversed the judgment for the plaintiff and remanded the case for further hearing. *Bradley v. Poole, 47 S. E. (2d) 341 (Va., 1948).*

Legitimacy of Child Produced by Artificial Insemination.—The plaintiff wife filed a motion to determine the defendant's right to visit the minor child of the two parties. The motion was heard in the Supreme Court, Special Term, New York County, Part I.

The court assumed, in the light of the record and the concessions made by the defendant, that the plaintiff was artificially inseminated with the defendant's consent and that the child is not of the blood of the defendant. The court then held that the child had been potentially adopted or semiadopted by the defendant. In any event, said the court, in so far as this defendant is concerned, and with particular reference to visitation, he is entitled to the same rights as those acquired by a foster parent who has formally adopted a child, if not the same rights as those to which a natural parent in the circumstances would be entitled. Furthermore, said the court, assuming again that the plaintiff was artificially inseminated with the consent of the defendant, this child is not an illegitimate child. Indeed, logically and realistically the situation is no different from that pertaining in the case of a child born out of wedlock who is by law made legitimate on the marriage of the interested parties. The court said that it would not pass on the legal consequences in so far as property rights are concerned in a case of this character, nor would the court express an opinion on the propriety of procreation by the medium of artificial insemination. The latter problem particularly, said the court, is in the field of sociology, morality and religion. Accordingly, the defendant was granted the right to visit the minor child at certain specified times.—*Strnad v. Strnad, 78 N. Y. S. (2d) 390 (N. Y., 1948).*

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

Alabama State Medical Assn. Journal, Montgomery

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Management of Ringworm of Scalp: Present Status of Epidemic Form in Birmingham Area. J. S. Snow and I. D. London.—p. 333.

Complications of Sinusitis with Particular Emphasis on Osteomyelitis of Frontal Bone. L. C. Bleidt.—p. 337.

Hearing Disorders: Study of New Medical Therapy. G. R. Gordon. —p. 340.

Anaylsis of 435 Endoscopic Examinations from Bronchoscopic Service of Medical College of Alabama. G. E. Fisher and J. J. Hicks.—p. 344.

Progress of Physical Medicine and Its Clinical Application. F. F. Schwartz.—p. 346.

American Heart Journal, St. Louis

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Cardiac Output in Congestive Heart Failure: Analysis of Reasons for Lack of Close Correlation Between Symptoms of Heart Failure and Resting Cardiac Output. E. A. Stead Jr., J. V. Warren and E. S. Brannon.—p. 529.

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Behavior of Venous Pressure During Various Stages of Chronic Congestive Heart Failure. T. B. Gibbons.—p. 553.

*Influence of Supradiaphragmatic Splanchnicectomy on Heart in Hypertension. E. M. Isberg and M. M. Peet.—p. 567.

Electrocardiogram of Man in Semistarvation and Subsequent Rehabilitation. E. Simonson, A. Henschel and A. Keys.—p. 584.

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*Hereditary Disturbance of Cholesterol Metabolism: Factor in Genesis of Atherosclerosis. E. P. Boas, A. D. Parets and D. Adlersberg. —p. 611.

Primary Vascular Tumors of Pericardium. A Report of 2 Cases. M. Greenberg and A. Angrist.—p. 623.

*Sudden and Unexpected Natural Death: II. Coronary Artery Sclerosis. S. M. Rabson and M. Helperin.—p. 635.

Aid for Taking Precordial Electrocardiograms. J. E. F. Riseman. —p. 643.

Comparison of Blood Pressure in Lying and Standing Positions: Study of Five Hundred Men and Five Hundred Women. J. H. Currens. —p. 646.

Supradiaphragmatic Splanchnicectomy in Hypertension.—Isberg and Peet report on 384 patients with arterial hypertension, treated surgically by bilateral supradiaphragmatic splanchnicectomy and lower dorsal sympathetic ganglionectomy. Sixty per cent of patients with hypertensive heart disease were still living five to twelve years after splanchnicectomy. Of the hypertensive patients with normal hearts 93 per cent were still living five to twelve years after operation. Patients whose electrocardiograms show inverted T waves in leads I and II, or definite left axis deviation and abnormal T waves, have a 50 per cent chance for prolonged survival following splanchnicectomy. Of the patients still alive, 41 per cent of those with abnormal preoperative electrocardiograms recently showed significant improvement in their tracings five years or more after operation, and 44 per cent of those with preoperative cardiac enlargement recently showed significant decrease in heart size. Practically all patients who have shown improvement in electrocardiogram or decrease in heart size have maintained a significant reduction in blood pressure. Fifty per cent of hypertensive patients in whom an enlarged heart was demonstrated have not survived five to twelve years. Splanchnic resection is of no avail in cases of cardiac enlargement with a variation greater than 50 per cent of predicted normal for frontal area or transverse diameter. The patient with paroxysmal nocturnal dyspnea has little chance for benefit from splanchnic resection. Anginal seizures were frequently relieved after splanchnicectomy. Of patients with gallop rhythm prior to operation, almost a fourth have survived five years or more. The hypertensive patient in congestive heart failure which requires digitalization preparatory to splanchnicectomy stands 1 chance in 3 for prolonged survival following operation. Eight out of 11 hypertensive patients who had a coronary occlusion and were subsequently treated with splanchnic resection were still living five to nine years after operation. Comparing the spontaneous evolution of the electrocardiogram in hypertension in a control group with the evolution in hypertensive patients who had abnormal electrocardiagram prior to splanchnic resection, it may be said that splanchnicectomy has beneficially influenced the destiny of the hypertensive patients with abnormal electrocardiograms who have been fortunate enough to have lived five years and longer after operation.

Hereditary Disturbance in Cholesterol Metabolism and Atherosclerosis.—Boas and his associates say that the comparatively frequent appearance in the same person of arcus senilis, coronary atherosclerosis and elevated serum cholesterol suggests that they are more than coincidental. The authors studied 122 patients with symptoms of coronary artery disease and electrocardiographic evidence of myocardial damage, in whom symptoms appeared under 50 years of age. Each was examined for the presence of arcus senilis, xanthelasma and xanthoma. One or more serum cholesterol determinations were made by the method of Bloor. It was possible to investigate the families, chiefly siblings, of 50 of these patients. The average serum cholesterol for the 71 patients who exhibited hypercholesterolemia was 365 mg. per hundred cubic centimeters, and the average among the remaining 51 patients was 250 mg. per hundred cubic centimeters. Arcus senilis was exhibited by 22, xanthelasma by 12 and xanthomatosis by 3 of the group. The great majority with these stigmas had elevated serum cholesterol levels. Hypercholesterolemia (serum cholesterol of 300 mg. per hundred cubic centimeters or more) was found in all or most of the siblings of one third of fifty families of patients with coronary atherosclerosis. In 9 more families, one half of the siblings exhibited hypercholesterolemia. This study lends support to previous clinical investigations and indicates that a disturbance in cholesterol metabolism is probably concerned in the genesis of some instances of coronary atherosclerosis. It also suggests that altered cholesterol metabolism may be the common denominator in most patients with coronary artery disease and arcus senilis, or coronary artery disease and xanthelasma. One of the hereditary factors responsible for arteriosclerotic heart disease may reside in abnormal cholesterol metabolism.

Sclerosis of Coronary Artery and Sudden Death.—The observations reported by Rabson and Helperin were made in the course of necropsies in 2,030 cases in which death was unexpected in that the victims were apparently healthy at the time of death, and sudden because death took place usually within twenty-four hours after the onset of symptoms. The designation "natural death" indicates that death resulted exclusively from disease unassociated with external violence or poisoning. In 45 per cent of these cases death was attributed to diseases of heart and aorta. Of these, two thirds (30.4 per cent of the 2,030 cases) were caused by coronary arteriosclerosis. This percentage of coronary artery disease in the cardiac and aortic group corresponds almost exactly with that reported from Berlin, Germany, over an eight year period. Sudden death from coronary artery sclerosis occurred most frequently in white men. The three decades between 44 and 74 years contributed one and one-half times their percentage share of the population, but sudden death from this disease began to appear in the third decade. Death took place under no specific circumstances. In almost three fourths of the hearts, coronary artery sclerosis, and not fresh thrombosis, was responsible for vascular occlusion. In the remaining cases, a not always fresh thrombosis was encountered and an underlying sclerosis was always present. It is incorrect to attribute death to coronary thrombosis without indicating the underlying primary sclerotic disease of the arteries. Cardiac hypertrophy was found in 117 of 163 subjects. It was more prominent in the presence of myocardial fibrosis.

American Journal of Hygiene, Baltimore

47:135-246 (March) 1948. **Partial Index**

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American Journal of Medical Sciences, Philadelphia

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*Streptomycin in Treatment of Tularemia. R. C. Berson and A. B. Harwell.—p. 243.
*Procaine Penicillin G in Oil: I. Plasma Concentrations; Preliminary Observations on Its Use in Pneumonia. W. P. Boger, J. E. Oritt, H. L. Israel and H. F. Flippin.—p. 250.
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Principles of Variolation as Exemplified by Subclinical Immunization in Poliomyelitis in Cooler and Warmer Climates. W. L. Aycock and G. F. Meadors.—p. 296.
Strategic and Tactical Influence of Disease in World War II. J. E. Gordon.—p. 311.
Oral Immunization. C. E. Dolman.—p. 327.

Streptomycin in Tularemia.—Berson and Harwell state that of 56 patients with tularemia treated with streptomycin in Veterans Administration hospitals 15 were examples of pleuropulmonary tularemia. The pleuropulmonary infection occurred as a complication of the ulceroglandular form of the disease in only 5 cases. In the remaining 10, no primary site of infection other than the lung or the pleura could be determined. Streptomycin, when administered after the twelfth day of illness, appears to have little effect on the course of suppurative lymphadenopathy. Liquefaction and spontaneous drainage of lymph nodes may occur in such circumstances, even though there is striking improvement in the other manifestations of the disease. Only 3 patients demonstrated sensitivity to streptomycin. In none of these cases was it necessary to discontinue the drug. Streptomycin was highly effective in the treatment of tularemia in every case in this series. Its effect was most dramatic in the acutely ill patient pursuing a stormy course. The total dosage used in the 56 cases varied from 1.9 to 20 Gm., averaging 8.1 Gm. There was no difference in the dosage used in the ulceroglandular and the pleuropulmonary cases. The duration of treatment varied from four to eighteen days, averaging 9.1 days. Patients with the pleuropulmonary form of the disease were treated an average of two days longer than those with the ulceroglandular form. No correlation between the duration of treatment and the completeness of recovery could be observed.

Procaine Penicillin G in Oil: Its Use in Pneumonia.—Boger and his associates say that procaine and penicillin G are combined in equimolecular quantities to form a crystalline salt relatively insoluble in water. These procaine penicillin crystals were suspended in both cottonseed and sesame oils so that each 1 cc. of material contained 300,000 units of penicillin and 125 mg. of procaine. Both preparations were employed in this investigation, procaine proving superior by reason of greater stability and fluidity. No local pain of systemic toxicity was observed in 50 patients to whom procaine penicillin G has been administered. The duration of penicillin plasma concentrations above 0.039 unit per cubic centimeter varied from six to thirty hours in a group of 9 ambulatory controls. In a group of 10 patients with pneumonia it varied from seven to seventy hours. The averages in the two groups were twelve hours and thirty-three hours, respectively. Eighteen of 23 patients with bacterial pneumonia recovered without complication following a single intramuscular injection of procaine penicillin G in oil. Two patients relapsed under this therapy and 3 failed to respond. On the basis of these preliminary data, it appears that a single injection of 300,000 units of procaine penicillin will, in the average patient, give assayable plasma concentrations of penicillin, or a suppressive antibacterial action, for at least twenty-four hours.

Myocardial Changes in Fatal Diphtheria.—Gore points out that the high incidence of diphtheria in portions of Europe constitutes a medical hazard to this country under modern conditions of communication. The introduction of large numbers of United States troops into areas where the endemic diphtheria rate was high resulted in a striking increase of the incidence of that disease among them. This report is based on records and slides of 221 fatal cases of diphtheria accumulated at the Army Institute of Pathology. Material from the heart was available for review in 205 of these, and 143 of the 205 cases involved myocarditis. A higher mortality in the presence of myocarditis largely explains why its incidence in postmortem studies is so much greater than in clinical reports of diphtheria. As the length of survival from the onset of diphtheria increases, the incidence of myocarditis rises. A similar time relation is true for neuritis. Postdiphtheric neuritis appears later and is less frequent than myocarditis. The hearts of patients with myocarditis are dilated, with flabby, pale, or mottled musculature. Frequently the hearts are enlarged. Microscopically, there is a primary toxic degeneration of the myocardial fibers. The inflammatory response, which culminates in scarring, appears to be secondary to the muscle injury. In one third of the cases the manifestations of myocarditis appeared at a time when the patient seemed to be well on his way to convalescence. The importance of administration of antitoxin early and in adequate quantities is reemphasized as a measure to prevent myocarditis (and neuritis). A shocklike state following diphtheria must be recognized as a frequent manifestation of myocardial weakness lest the vigorous administration of intravenous fluids to combat it result in a fatal termination.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

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Pneumoencephalographic Diagnosis in Presenile Dementias. P. Chodoff, A. Simon and W. Freeman.—p. 311.
*Roentgenologic Aspect of Sarcoidosis. A. J. Ackerman.—p. 318.
*Heberden's Nodes: VII. Roentgenologic and Clinical Appearance of Degenerative Joint Disease of Fingers. R. M. Stecher and H. Hauser.—p. 326.
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Effect of Adrenal Cortical Injury on Toxicity of Roentgen Rays. B. N. Craver.—p. 404.
Experimental Studies on Toxicity of Beta-(4-Hydroxy-3,5-Diiodophenyl)-Alpha-Phenyl-Propionic Acid (Priodax). J. Howard.—p. 408.
Two Danish Photofluorographic Cameras of Original Schmidt Type. R. H. Morgan, D. M. Gould and W. W. Van Allen.—p. 416.

Roentgenologic Aspect of Sarcoidosis.—Ackerman points out that sarcoid lesions of specific organs were thought to be separate disease entities and were described under various names depending on their localization, until greater experience led to recognition of these entities as a generalized disorder

affecting the skin, lymph nodes, uveal tract and parotid gland, lungs and skeletal system. Recent observations tend to show that visceral organs are perhaps more frequently involved. The authors observed 19 cases of pulmonary sarcoidosis during the last three years in members of the armed forces. The 19 patients manifested practically no clinical evidence of disease and were detected usually in the course of routine examinations. The mediastinal and pulmonary lesions show fluctuations characterized by regression of the enlarged nodes and dissemination and less conspicuous regression of the pulmonary infiltrations. These may appear as miliary, nodular and occasionally confluent patchy densities scattered over large areas of the pulmonary parenchyma. There is no definite correlation between the morphologic changes and clinical symptoms produced by them. Absence of significant mediastinal adenopathy does not necessarily rule out pulmonary sarcoidosis or prove that these nodes are free from the disease. A previously existing adenopathy may have regressed sufficiently so that it is no longer recognizable. In view of the clinical experiences the prognosis in cases of pulmonary sarcoidosis should always be guarded. A definite diagnosis of sarcoidosis can be established only by a biopsy.

Heberden's Nodes.—Stecher and Hauser say that observations on nearly 7,000 persons revealed that Heberden's nodes were nearly ten times as common in women as in men, more common in white persons than in Negroes and that the incidence was definitely related to age, being rare in young persons but affecting about 30 per cent of white women in the ninth decade. It was further demonstrated that the occurrence of this form of degenerative disease of the joint was strongly influenced by heredity. The present study is based on observations, case histories, photographs and roentgenograms of over 100 patients with Heberden's nodes and on material assembled during the course of previous studies. The appearance of the nodes may range widely from Heberden's original description of "hard knobs about the size of a small pea." They may start as a fluctuant swelling, a myxomatous subcutaneous cyst or a synovial lesion in the skin, but develop from these to large bony deformities. Roentgenograms reveal enlargement of the ends of the bones with distortion of joint space and irregularity of the joint surface. Large spurs develop from the attachments of the flexor and the extensor tendons to the terminal phalanx. Such spurs seen only in lateral views have been heretofore largely overlooked. The distal ends of the middle phalanges undergo change of the bony structure with irregularity and a foamy arrangement of the trabeculae. Heberden's nodes, typical manifestations of degenerative joint disease of the terminal finger joints, are sometimes associated with degenerative joint disease of the proximal interphalangeal joints. Such association was noted in 40 per cent of the cases reviewed. Degenerative joint disease involves periarticular soft tissue, tendinous attachments and subchondral marrow spaces as well as the joint cartilage and the immediately underlying bone.

American Journal of Surgery, New York

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Tungsten Steel Gouge for Use in Nicola Operation. I. Stein.—p. 585.
Vascular Obstructed Acute Gallbladder. M. S. Rosenblatt.—p. 587.

Adenoma of Bronchus.—Naclerio and Langer point out that during the last decade an increasing number of bronchial adenomas have been discovered, the condition now being recognized as a definite clinical and pathologic entity. This tumor accounts for approximately 80 per cent of the benign bronchogenic growths. No unanimity of opinion exists regarding its origin, potential malignancy, relationship to cancer of the bronchus and its treatment. The disease is usually asymptomatic in the early stages, but not infrequently a dry, irritating cough is present. Hemoptysis is a cardinal symptom. As the tumor encroaches on the lumen of the bronchus, symptoms of partial or total obstruction may appear. Dyspnea is a frequent symptom. There have been episodes of pneumonia characterized by cough, mucopurulent sputum, fever and pain in the chest. As the tumor progresses, filling the lumen of the bronchus, obstructive effects with irreparable damage to the lung develop so that the clinical picture is then one of either atelectasis, bronchiectasis, pulmonary abscess or empyema. The diagnostic procedures include plain roentgenography, section roentgenography, bronchography and bronchoscopy, the last being still the most decisive single diagnostic procedure available. The authors evaluate radiation therapy, bronchoscopic and surgical treatment. Case histories of 15 patients treated and cured by pulmonary resection, 10 by pneumonectomy and 5 by lobectomy are presented. Bronchial adenoma should be treated either by lobectomy or by pneumonectomy.

Osgood-Schlatter's Disease.—Although Osgood-Schlatter's disease (osteochondrosis of the tibial tubercle) is regarded as comparatively rare, Kridelbaugh and Wyman observed 13 cases of this disorder in the short period of nine weeks at a large Naval recruit training center. Nine of the patients gave a history of trauma. Most authors are of the opinion that conservative treatment with posterior splints, cylindrical casting, taping or ace bandaging over the tubercle and/or bed rest is the treatment of choice in early cases. The consensus favors a trial of such treatment before more radical measures are attempted. In the cases in which symptoms persist beyond four to six months under conservative therapy, there should be operative intervention. In the 13 cases reviewed here conservative treatment was employed while the patients were ambulatory and without restriction of their activity. Six of the patients showed improvement while the anterior part of the thigh was taped, 2 were not improved, 2 were made worse and 3 could not be followed. Making a rough estimate of the incidence of Osgood-Schlatter's disease on the basis of their material, the authors believe that the disease may occur in 0.14 per cent of males between the ages of 17 and 19.

American Review of Tuberculosis, New York

57:207-310 (March) 1948

*Incipiency and Evolution of Pulmonary Tuberculosis: I. Initial Manifestations of Disease. D. Reisner.—p. 207.
*Id.: II. Behavior of Initial Lesion and Course of Disease During Observation Period. D. Reisner.—p. 229.
Functional Pulmonary Capacity and Surgical Risk: Correlation Between Clinical Estimation and Functional Studies. L. Levy II, J. H. Seabury and E. Hull.—p. 254.
Arteriovenous Fistula of Lung: Its Hereditary and Clinical Aspects. A. Goldman.—p. 266.
Pulmonary Adenomatosis: Report of a Case. E. Hildebrand.—p. 281.
Effect of Diet on Experimental Tuberculosis of Mice. R. J. Dubos and Cynthia Pierce.—p. 287.
Chemistry of Lipids of Tubercle Bacilli: LXXIV. A Contribution to Study of Acid-Fastness of Acid-Fast Bacilli. N. Fethke and R. J. Anderson.—p. 294.

Initial Manifestations of Pulmonary Tuberculosis.—Routine periodic examinations of 344 persons who had been under observation because of a history of contact with a known case of tuberculosis provided the principal source for this study conducted by Reisner. Roentgenologically demonstrable lesions developed during the course of observation. In 248 patients the initial lesion was demonstrated within twelve months after a previous normal roentgenogram and in the remainder the interval was longer than one year. In white persons pulmonary tuberculosis usually begins as a small localized lesion. In nonwhite persons the disease often begins abruptly and reaches extensive proportions within a short time. The roentgenologic aspects suggest that the early manifestation of pulmonary tuberculosis is usually a lesion of predominantly exudative, pneumonic character. The usual roentgenologic manifestation of the early tuberculous lesion of limited extent is a localized small area of "soft" infiltration, ill-defined and of flocculent appearance. The circumscribed infiltrates were observed only in a few cases. In about 90 per cent of the cases the initial lesion was located in the so-called vulnerable zone

of either the right or the left lung, an area comprising approximately the upper third of the pulmonic field. Most patients with early minimal pulmonary tuberculosis have no symptoms, and the only method available for detection of the truly incipient tuberculous lesion is routine roentgen examination of the chest at periodic intervals.

Behavior of Initial Tuberculous Lesion.—Reisner discusses the evolution of pulmonary tuberculosis in 340 cases in which roentgenologically demonstrable lesions had developed during the period of observation. Sixty-nine per cent of the patients were observed for more than two and up to ten years after the initial detection of the pulmonary lesion. The remainder were observed for less than two years. It was found that the initial lesions are nearly always unstable and that they exhibit a tendency to progression. The cumulative rate of progression, calculated on the basis of person-years of observation, amounted to 59 per cent in white persons and 88 per cent in nonwhite patients. The majority of destructive forms of pulmonary tuberculosis seem to have their origin in inconspicuous early minimal lesions. There is apparently no way of predicting the subsequent evolution of the incipient minimal lesion other than observation over a considerable period of time. Consistent differences were observed between white and nonwhite persons as regards the mode of onset, the course and ultimate outcome of the disease. Its greater severity in the nonwhite group is indicated by a greater frequency as well as a more rapid tempo of progression and by a case fatality rate four times higher than in white persons. The serious potentialities of minimal incipient lesions of pulmonary tuberculosis indicate the need for careful therapeutic management and extended follow-up.

Anesthesiology, New York

9:115-228 (March) 1948

Local Anesthetic Properties of Amidone (Dolophine). F. G. Everett. —p. 115.
Chicago Keysort Anesthesia Record. W. A. Conroy, W. H. Cassels and B. Stodsky.—p. 121.
Influence of Posture on Mechanics of Respiration and Vital Capacity. C. R. Stephen.—p. 134.
Pentothal-Curare Solution: Preliminary Report and Analysis of Its Use in 160 Cases. J. W. Baird, W. R. Johnson and F. H. Van Bergen. —p. 141.
New Method for Recording Effect of Various Agents on Caliber of Human Bronchial Tree. C. M. Landmesser and R. D. Dripps. —p. 159.
Studies on Parenteral Administration of Hydrogen Peroxide. A. L. Lorincz, J. J. Jacoby and H. M. Livingstone.—p. 162.
Erythroblastosis Fetalis Caused by Double Sensitization to Factors rh" and Hr'. A. S. Weiner and G. J. Brancato.—p. 175.
Anesthetic Problems in Thoracic Surgery. E. R. Maurer.—p. 183.
Action of Procaine, Salicylate and Benzoate of Sodium on Excitability of Skeletal Muscle and of Nerve. T. Sollmann and J. J. Estable. —p. 188.

Annals of Western Medicine & Surgery, Los Angeles

2:143-192 (April) 1948. **Partial Index**

*Evaluation of Treatment for Cirrhosis of Liver. L. M. Morrison. —p. 143.
Recent Advances in Treatment of Syphilis. T. H. Sternberg.—p. 156.
Anesthesia for Upper Abdominal Surgery. B. H. Rosser.—p. 161.
Uteroscopy: Preliminary Report on New Developments. L. P. Belous and J. S. Rubin.—p. 165.

Treatment of Cirrhosis of Liver.—According to Morrison it is now a decade since Patek introduced the modern therapy of cirrhosis of the liver. Some confusion has arisen as to (1) which lipotropic agents to employ in the treatment of a patient with cirrhosis of the liver (choline, methionine, liver extract), (2) the reason for failure of treatment in some 50 per cent of patients, plus (3) some method of determining the prognosis. The author presents an analysis of 35 patients with hepatic cirrhosis of the nutritional deficiency type associated with chronic alcoholism. These patients were treated either by a modified Patek regimen or by a diet high in protein, high in carbohydrate and low in fat, oral choline, and parenteral aqueous, filtered liver extract. These patients were treated from 1940 to 1947. For comparison a "control" series of 20 patients is also presented who were treated from 1938 to 1940 by the then current use of mercurial diuretics and ammonium chloride with paracentesis for ascites, and a high carbohydrate diet with glucose intravenously for the cirrhotic patients with ascites. An additional 22 patients with hepatic cirrhosis not associated with nutritional deficiency or alcoholism were studied for comparative purposes. An attempt is made on the basis of liver punch biopsies to clarify the forms and stages of hepatic cirrhosis which were responsive to treatment and those which fail to respond to treatment. The results of the outlined therapy in the early stages of alcoholic cirrhosis of the liver were excellent; in the moderately advanced stages of alcoholic cirrhosis they were good. In the advanced (Laennec's) stage of alcoholic cirrhosis the treatment was a failure. The results of the outlined therapy in nonalcoholic cirrhosis of the liver were poor.

Archives of Physical Medicine, Chicago

29:199-250 (April) 1948. **Partial Index**

Challenge to Physical Medicine. H. E. Van Riper.—p. 199.
Electromyography in Kinesiologic Evaluations. W. Bierman and J. J. Yamshon.—p. 206.
Prevention of Postural Deformities in Children with Cerebral Palsy. W. M. Phelps and Robertine St. James.—p. 212.
*Oxygen Therapy in Poliomyelitis, a Tracheotomy Inhalator Incorporating Humidification and Optional Use of Positive Pressure for Oxygen Therapy in Patients with Tracheotomy. W. G. Kubicek, G. W. Holt, J. O. Elam and others.—p. 217.

Oxygen Therapy in Poliomyelitis.—Kubicek and his associates point out that of the 73 adult patients with bulbar poliomyelitis admitted to the University of Minnesota Hospitals, 39 were treated by tracheotomy for partial or complete obstruction of the airway. It was necessary to use a mechanical respirator on 21 of the 39 patients, because of failure of the central or peripheral respiratory mechanism. The construction and operation of a tracheotomy inhalator is presented. This apparatus provides humidification of the inspired air and has simple arrangements for the optional use of positive pressure during expiration and for increasing the positive pressure on inspiration as an emergency maneuver. Continuous use of the inhalator varied from four days to a maximal period of four weeks. The easily visualized excursions of the breathing bag and intermittent bubbling of the expired air through the manometer facilitated the watching of the critical patients.

Arizona Medicine, Phoenix

5:1-120 (March) 1948

Multiple Primary Carcinomas. D. W. Melick and O. O. Williams. —p. 29.
Nitrous Oxide Anesthesia with Curare for Pulmonary Resection. A. Urry.—p. 31.
Disseminated Coccidioidal Granuloma (Case Report). B. L. Snyder and G. K. Rogers.—p. 33.
Mediastinal Emphysema: a Case Report. A. B. Thompson.—p. 37.
Carcinoma of Rectum and Rectosigmoid. C. F. Dixon.—p. 41.
False Positive Serology; Its Interpretation and Management. K. C. Baker and C. J. White.—p. 45.
Diagnosis and Treatment of Carcinoma of Rectum. W. R. Manning. —p. 49.

Bulletin of Johns Hopkins Hospital, Baltimore

82:429-514 (April) 1948

Effect of Atropine and Estrogens on Intraocular Uterine Transplants in Rabbit. I. H. Kaiser.—p. 429.
Multi-Channel Strain-Gage Tokodynamometer: An Instrument for Studying Patterns of Uterine Contractions in Pregnant Women. S. R. M. Reynolds, O. O. Heard, P. Bruns and L. M. Hellman.—p. 446.
Oximeter Control of Arterial Oxygen Saturation in Anoxemia Studies. R. Penneys and C. B. Thomas.—p. 470.
Scottish Experiments in Social Medicine. A. Davidson.—p. 479.
Antethoracal Transplantation of Stomach in Treatment of Congenital Atresia of Thoracic Esophagus. A Preliminary Report. W. F. Reinhoff Jr.—p. 496.

Bull. of U. S. Army Med. Dept., Washington, D. C.

8:247-326 (April) 1948

What Every Medical Officer Should Know About the Atomic Bomb. —p. 269.
Cardiolipin Antigen in Kolmer Complement-Fixation Test for Syphilis. J. F. Kent, H. M. Boyd and R. W. Sanders.—p. 284.
Modern Management of Thyroid Disease. F. Lahey.—p. 294.
Medical Experiences in Luzon P. O. W. Camp No. 1. J. T. Kauer. —p. 302.
Surgical Management of Peptic Ulcers. S. Standard.—p. 310.
Atherosclerosis. W. Dock.—p. 316.

Delaware State Medical Journal, Wilmington

20:21-40 (Feb.) 1948

Present Status of Diabetes Mellitus—1947. L. B. Flinn.—p. 21.
Re: Poliomyelitis in Delaware, 1947. A. P. Hitchens.—p. 28.
Wilmington Board of Health and Rapid Treatment Centers for Syphilis. G. J. Boines.—p. 30.

20:41-64 (March) 1948

*Influence of Hesperidin C on Abnormal Capillary Fragility in Rheumatoid Arthritis Patients. P. J. Warter, H. L. Drezner and S. Horoschak. —p. 41.
Present Trends in Prepayment Medical and Hospital Plans. H. V. Maybee.—p. 45.

Hesperidin C for Capillary Fragility in Rheumatoid Arthritis.—In a group of patients with rheumatoid arthritis in whom capillary resistance was measured, Warter and his co-workers found 16 with borderline capillary fragility, 25 with severe capillary fragility and only 1 patient with normal capillary fragility. Forty patients with rheumatoid arthritis who had manifestations of abnormal capillary fragility have been treated and observed for three to twenty-four months. A combination of hesperidin 50 mg., a flavanone glucoside and ascorbic acid 50 mg., was found to be effective in restoring abnormal capillary fragility to normal in 90 per cent of the patients treated. Lemon peel infusion concentrate also restored abnormal capillary fragility, but a longer time and larger doses were required as compared to hesperidin C. Some patients showed fluctuations in capillary resistance due to acetylsalicylic acid, amphetamine sulfate, emotional stress and severe upper respiratory infections. Withdrawal of the drugs resulted in a rapid return to normal resistance. In patients with emotional stress and upper respiratory infection an increase in the dosage of hesperidin C maintained normal capillary resistance. High vitamin D and B complex therapy did not influence capillary fragility in the small group of patients used as controls. Protein hydrolysate with B complex did lower the sedimentation rate and favorably influenced the hemoglobin and red cell count, but there was no apparent beneficial effect on the abnormal capillary fragility. The authors suggest that hesperidin, a flavanone glucoside occurring in most varieties of citrus fruits, is essential for the absorption and retention of ascorbic acid, acting synergistically in maintaining normal capillary resistance. The correction of abnormal capillary fragility in patients with rheumatoid arthritis should be considered as only one of the phases to improve the patients' condition. This phase of treatment may enhance the efficacy of other therapeutic procedures.

Gastroenterology, Baltimore

10:349-574 (March) 1948

*Late Manifestations of Epidemic Infectious Hepatitis. W. Volwiler and J. A. Elliott Jr.—p. 349.
Paracolon Bacilli as Related to Chronic Dysentery Syndromes. C. R. Darnall.—p. 366.
Gastric Surgery: Review of Literature for 1946. S. F. Marshall and M. L. Gerber.—p. 377.
Pancreas: Contributions of Clinical Interest Made in 1946. R. Elman and C. A. Ross.—p. 399.
Sixty Years of Vagotomy: Review of Some 200 Articles. W. C. Alvarez.—p. 413.
Carcinoma of Pancreas: Operative Problems. H. C. Saltzstein and W. S. Johnson.—p. 442.
*Amebiasis in Veterans of World War II with Special Emphasis on Extra-Intestinal Complications, Including Case of Amebic Cerebellar Abscess. M. A. Spellberg and S. Zivin.—p. 452.
Description of Gastroscopic Appearance of Luetic Gastric Lesions in Late Acquired Syphilis. C. O. Patterson and M. O. Rouse.—p. 474.
Effect of Dietary Fat on Fecal Fat Excretion and Subjective Symptoms in Man. J. H. Annegers, J. H. Boutwell and A. C. Ivy.—p. 486.
Assay of Cholecystokinin and Influence of Vagotomy on Gall Bladder Response. W. J. Snape, H. F. Friedman and J. E. Thomas.—p. 496.
Experimental Study of Gastric Emptying in Vagotomized Dog. M. Feldman and S. Morrison.—p. 502.
Pharmacologic Aspects of Gastric Secretion: I. Effect of Opium Alkaloids and "Allied" Drug Demerol on Pouch Secretions in Dogs. K. A. Merendino.—p. 504.

Epidemic Infectious Hepatitis.—Volwiler and Elliott correlate clinical observations with laboratory data and liver biopsy histology in the late phases of hepatitis. Nine of 13 patients had persisting active hepatitis proved by needle biopsy four to forty-two months after the onset of jaundice. The remaining 4 had shown continuous mild clinical icterus eighteen months to twenty-one years following an illness typical of epidemic infectious hepatitis. The authors stress that late manifestations of epidemic infectious hepatitis include: (1) prolonged mild hepatitis which may last for several years without significant scarring; (2) progressive hepatic fibrosis associated with similar smoldering inflammation, and (3) continuous mild jaundice with normal histologic features and without abnormal liver function tests. Most likely to reflect persisting active inflammation are the 5 mg. sulfobromophthalein sodium test, the thymol turbidity test, the thymol flocculation test and the erythrocyte sedimentation rate. In cases of prolonged infectious hepatitis deep liver biopsies, such as may be obtained by trocar, are necessary for accurate evaluation of the state of the liver, and the histologic information obtained thereby is often essential to planning an intelligent therapeutic program.

Amebiasis in Veterans of World War II.—From January to August 1946, 12,000 patients were admitted to Hines Veterans Hospital; 58 of these were suffering from amebic colitis or its complications. In the last year before the war, of 9,000 admissions to this hospital only 8 were diagnosed as amebic colitis. The postwar incidence of this disease is therefore increased five times. All the cases were seen among veterans of World War II, although the general admission to this hospital includes a considerable number of World War I veterans. The authors observed a relationship between the exposure in tropical climates and the incidence of the disease. Fifteen cases of hepatic complications, indicative of a virulent infection, were observed in the 58 patients. The treatment of choice for hepatitis is emetine, and emetine plus aspiration for hepatic abscess. The wisdom of using emetine in carriers is doubted; the intestinal amebicides produce excellent results and are without danger. They do not require hospitalization of the patient. One case of amebic colitis complicated by a cerebellar abscess is reported, the second in the literature.

Journal of Clinical Investigation, Boston

27:165-298 (March) 1948. **Partial Index**

Oral and Parenteral Phenylalanine Requirements for Nitrogen Equilibrium in Man. R. D. Eckhardt and C. S. Davidson.—p. 165.
Blood Lactic Acid Response to Measured Exercise in Hypoxic Human Subjects. J. Tepperman and Helen M. Tepperman.—p. 176.
Influence of Clothing, Work, and Air Movement on Thermal Exchanges of Acclimatized Men in Various Hot Environments. N. A. Nelson, W. B. Shelley, S. M. Horvath and others.—p. 209.
*Further Studies of Effects of Insulin on Metabolism of Vitamin C. S. Sherry and E. P. Ralli.—p. 217.
Absorption of Orally Administered Emulsified Lipid in Normal Children and in Children with Steatorrhea. C. D. May and C. U. Lowe. —p. 226.
Clinical Application of Simple Method for Estimating "Gamma Globulin." B. V. Jager and M. Nickerson.—p. 231.
*Chemical, Clinical and Immunologic Studies on Products of Human Plasma Fractionation: XXXVI. Inactivation of Virus of Homologous Serum Hepatitis in Solutions of Normal Human Serum Albumin by Means of Heat. S. S. Gellis, J. R. Neefe, J. Stokes Jr. and others. —p. 239.
Serum Cholesterol Level of Prematurely Born Infant and Its Mother. M. J. Whitelaw.—p. 260.
Dephosphorylation of Adenosinetriphosphate by Normal and Pathologic Human Serums. A. Meister.—p. 263.
Effect of Exercise on Renal Plasma Flow and Filtration Rate of Normal and Cardiac Subjects. A. J. Merrill and W. H. Cargill.—p. 272.
Sensitivity of Tubercle Bacillus to Streptomycin Before and During Specific Therapy. J. F. Sadusk Jr., and W. E. Swift Jr.—p. 278.
Plasma Volume, Total Circulating Protein, and "Available Fluid" Abnormalities in Preeclampsia and Eclampsia. E. D. Freis and J. F. Kenny. —p. 283.
Cardiovascular Reactions to Emotional Stimuli: Effect on Cardiac Output, Arteriovenous Oxygen Difference, Arterial Pressure, and Peripheral Resistance. J. B. Hickam, W. H. Cargill and A. Golden.—p. 290.

Effects of Insulin on Metabolism of Vitamin C.—Sherry and Ralli investigated the mechanisms by which insulin causes a prompt fall in plasma and urinary vitamin C levels. Insulin caused these changes regardless of whether it was injected subcutaneously, intravenously or intramuscularly. There were significant differences in both the onset and duration of the effects of insulin on both the plasma levels and excretion of vitamin C, depending on the route of administration of the insulin. The effects of the insulin in each instance were transient and were followed by a period in which the plasma level and the urinary excretion were elevated. This was followed by a return of the vitamin C levels to normal. Studies in dogs, rats, guinea pigs and human beings showed that insulin had no effect in vitro and that insulin did not affect the

synthesis of ascorbic acid. It is suggested that insulin causes a transient transfer of ascorbic acid from the plasma and extracellular fluid into the tissues, possibly for some catalytic function of ascorbic acid.

Heat for Inactivation of Virus of Serum Hepatitis in Albumin.—According to Gellis and his associates most epidemiologic investigations suggest that the risk of transmitting hepatitis is greater with plasma than with whole blood. This presumably depends on the practice of pooling the plasma from a number of donors, an occasional one of whom may harbor the virus, and of administering each pool to multiple recipients. The hepatitis viruses are known to be highly resistant to chemical and physical agents. They survive heating at 56 C. for one hour. They remain active for at least several years in the frozen state and withstand repeated thawing and refreezing. The remarkable thermal stability of human serum albumin solutions suggested the use of heat as the most likely method for the inactivation of the hepatitis virus. On the basis of limited experiments the virus of homologous serum hepatitis appeared to be inactivated when stabilized human albumin solutions to which the virus was added were heated at 60 C. and 64 C. for ten hours. This degree and duration of heating apparently do not seriously alter the measurable chemical or physical properties of the albumin. Heat treatment at 60 C. for ten hours in the final container is now a routine step in the preparation of human albumin solutions. Clinical use of albumin so prepared would appear to be free from the risk of transmission of active serum hepatitis virus.

Journal of Experimental Medicine, New York

87:259-368 (April) 1948

Chemical Studies in Host-Virus Interactions. Catherine B. Fowler and S. S. Cohen.—p. 259.
Production of Proteinase by Hemolytic Streptococci in Various Clinical Conditions. S. Rothbard and E. W. Todd.—p. 283.
Immunochemical Studies on Blood Groups: VI. Cross-Reaction Between Type XIV Antipneumococcal Horse Serum and Purified Blood Group A, B and O Substances From Hog and Human Sources. E. A. Kabat, A. Bendich, Ada E. Bezer and Vesta Knaub.—p. 295.
Nature of Virus Receptors of Red Cells. G. K. Hirst.—p. 301.
Effect of Desoxycorticosterone Acetate on Blood Pressure, Renal Function and Electrolyte Pattern in Intact Rat. S. M. Friedman, J. R. Polley and Constance L. Friedman.—p. 329.
Studies on Scrub Typhus (Tsutsugamushi Disease) III. Heterogenicity of Strains of R. Tsutsugamushi as Demonstrated by Cross-Vaccination Studies. F. L. Rights, J. E. Smadel and Elizabeth B. Jackson.—p. 339.
Food Protein Effect on Plasma Specific Gravity, Plasma Protein and Hematocrit Value. T. Addis, H. Gray and Evalyn Barrett.—p. 353.

Journal Industrial Hygiene & Toxicology, Baltimore

30:71-144 (March) 1948

Physiologic Response of Experimental Animals Following Absorption of 2-Amino-thiazole. W. B. Deichmann, K. V. Kitzmiller, F. F. Heyroth and S. Witherup.—p. 71.
Physiologic Response of Animals to 2-Aminodiazine and 2-Amino-4-Methyl Pyrimidine. J. F. Treon, H. Wright, K. V. Kitzmiller and W. J. Younker.—p. 79.
Comparative Toxicity of Cryolite for Rats and for Rabbits. E. J. Largent.—p. 92.
*Observations on Hydrazoic Acid. J. D. P. Graham, J. M. Rogan and D. G. Robertson.—p. 98.
Studies on Aerosols. I. Reduction of Dust Deposition in Lungs of Rabbits by Aqueous Aerosols. L. Dautrebande, B. Highman and W. C. Alford.—p. 103.
Id.: II. Coating and Agglutinating of Dust Particles by Aqueous Aerosols. L. Dautrebande, W. C. Alford and B. Highman.—p. 108.
Porphyrinuria in Lead Poisoned Dogs. K. Salomon and G. R. Cowgill.—p. 114.
Benign Pneumoconiosis Due to Tin Oxide: Case Report with Experimental Investigation of Radiographic Density of Tin Oxide Dust. E. P. Pendergrass and A. W. Pryde.—p. 119.
High Volume Air Sampling and Filter Weighing Method for Certain Aerosols. L. Silverman and F. J. Viles Jr.—p. 124.
Sampling Device for Average Gas Concentrations in Air. D. E. Goldman and J. A. Mathis.—p. 129.
Ventilation of Clothing and Tolerance of Man to Low Environmental Temperatures. S. M. Horvath.—p. 133.
Partition Coefficients of Fifty Compounds Between Olive Oil and Water at 20 C. R. Macy.—p. 140.

Hydrazoic Acid.—Graham and his associates say that in the course of routine medical examinations in an explosives factory one of them observed that the workmen employed in the manufacture of lead azide showed considerable lowering of blood pressure. Clinical investigations were carried out on ten workmen. Determinations of the hydrazoic acid content of the air in the lead azide plant were made on separate days in the area of maximum concentration. The workmen stated that symptoms were noted only when the fume concentration was high. Then they experienced headache, palpitation, occasional weakness and unsteadiness. On cessation of exposure to the fume recovery from palpitation was almost immediate. Recovery from headache occurred in from a quarter of an hour to an hour and a half. Clinical and laboratory examination of the workers who had been regularly exposed to hydrazoic acid fume over a period ranging from one to fifteen years failed to reveal pathologic change which could be attributed to this exposure. Exposure to hydrazoic acid gas caused a rapid and severe fall in both the systolic and diastolic blood pressures, which was associated with headache. Animal experiments showed that hydrazoic acid in high dosage is extremely toxic. Hydrazoic acid and sodium azide, administered to animals in small doses, cause mild respiratory stimulation, a fall in blood pressure and coronary dilatation. Hydrazoic acid in concentrations which appear to have no permanent adverse effects is a powerful hypotensive agent.

Journal of International College of Surgeons, Chicago

11:1-130 (Jan.-Feb.) 1948. **Partial Index**

Neuralgias of the Face: Diagnosis and Treatment. A. W. Adson.—p. 1.
Uterine Bleeding with Special Reference to Functional Type. E. Novak.—p. 9.
*Management of Surgical Lesions of Left Colon. C. Rosser.—p. 17.
Carcinoma and Uterine Fibromyomas. F. H. Falls.—p. 24.
*Surgical Aspects of Endometriosis. V. S. Counseller.—p. 29.
*Coronary Disease of Hip. F. A. Chandler.—p. 34.
Pes Tortus Congenitalis. G. L. Burke.—p. 37.
Partial Gastrectomy in Treatment of Perforated Gastric and Duodenal Ulcers. A. Bobbio.—p. 41.
Treatment of Inveterate Cystitis. R. Darget.—p. 49.
Liver Changes in Surgical Conditions of Gastro-Intestinal Tract. L. Efskind.—p. 52.
Pyogenic Infection of Minor Abrasions in Tropical Areas—Their Treatment with Penicillin. T. F. Rose.—p. 55.
Struma Lymphomatosa (Hashimoto's Disease): Report of Case. E. S. Sinaiko, C. H. Lawrence and I. Zitman.—p. 62.
Treatment of Prostatic Carcinoma. R. McCaffery and E. Hess.—p. 68.
Augmented Action of Anesthetics by Vitamin B1. G. Bazzocchi and G. Bocchetti.—p. 72.
Personal Experience with Carcinoma of Rectosigmoid and Rectum in Private Practice. A. O. Wilensky.—p. 73.
Concept of Pyloric Balance in Ileus. W. Bartlett Jr.—p. 82.
Omphalocele. D. Kershner, I. C. Zuckerman and L. N. Kessler.—p. 89.

Surgical Lesions of Left Colon.—Diagnostic problems of lesions of the left colon are numerous, the distinction between malignant tumors and tumefaction due to peridiverticulitis being the most difficult. Present methods of preparing patients for colonic surgical measures, especially the administration of sulfasuxidine and phthalylsulfathiazole ("sulfathalidine"), tend to decrease the mortality and the morbidity in this surgical field. During the period January 1946 to July 1947 resection of 23 carcinomas of the left colon were performed by Rosser without fatality, peritonitis or serious infection of the wound. Definitive indications for multiple stage removal of the colonic tumor, including partial obstruction and infection, were present in 7 cases. Exploratory operations for possible colonic polyposis are justified in the presence of inconclusive radiologic observations because of the serious potentialities of the lesion. The surgeon, not the pathologist, must determine how extensive the surgical procedure shall be when a polyp is discovered in the colon. Ten cases of stenosis of end colostomies were observed, apparently due to a low grade inflammatory reaction causing retraction. For the prevention and repair of this type of stenosis Cattell's method of skin inversion was employed, to which the Sturmdorf stitch was applied with a silkworm suture to hold the skin more firmly and effectively in place.

Endometriosis.—Counseller believes that there is no pelvic operative procedure that at some time is not required for endometriosis or made more difficult by its presence. Since the symptoms of endometriosis are due to the presence of functioning ectopic endometrium, castration may cure the majority of patients, the exception to this being cases in which the chief symptoms are due to a mass in the pelvis, obstructed loops of bowel or massive adhesions. The ovaries of patients of any age group should not be removed unless it is necessary, but especially not those of patients less than 40 years of age. In spite of strong convictions in this regard, it was deemed neces-

sary to produce castration in 36 per cent of the cases in which patients were less than 40 years of age, because the extensiveness of the endometriosis precluded its complete removal. More than 50 per cent of the patients with moderate or severe symptoms and physical indications of endometriosis require castration to relieve their symptoms. Some patients have the endometriosis confined to one removable adnexum or this plus a few removable implants. Either the endometriosis or the ovaries must be completely removed in order to obtain a surgical cure. A high percentage of secondary and tertiary pelvic laparotomies are required because an incomplete operation was done previously for endometriosis. If the extensiveness of the endometriosis is such as to require castration, the procedure is not usually followed by the same intensity of menopausal symptoms as is common in castration for other reasons; the gradual destruction of ovarian tissue by the endometriosis may have progressed at the time of intervention to such an extent that the patient has been bordering on menopause for some time. During this period she may have unknowingly made a gradual nervous adjustment which the final complete withdrawal of ovarian secretion does not upset. Presacral neurectomy was done in a selected group of 20 cases in which the chief symptoms of dysmenorrhea and dyspareunia were due to deep implants in Douglas' cul-de-sac which could not be removed. This was combined with excision of the accessible implants and usually a suspension of an adherent retroverted uterus. Owing to careful selection of patients the results of this procedure have been good.

Coronary Disease of Hip.—According to Chandler, infarction of the head of the femur presents a group of symptoms dominated by pain, loss of function and bony collapse caused by anoxemia and other deficiency in arterial nutrition of the head of the femur, prolonged enough to result in appreciable degeneration, even necrosis of bone. In many respects the sequence of degenerative pathologic changes following impairment of the circulation in the head and neck of the femur parallels similar processes in cardiac coronary disease. The degree of degeneration and the effectiveness of repair depend on the extent of the vascular impairment and establishment of an adequate collateral circulation. The possibility of the embarrassment of circulation through the vessels lying in the synovial folds of the femoral neck by increased joint pressure, caused by effusion, must be kept in mind. Loss of hip function corresponds with degenerative changes resulting from inadequate blood supply and the resulting lack of nutrition. The concept of "coronary disease of the hip" will afford a better understanding of many of the pathologic processes encountered in the head and neck of the femur.

Journal-Lancet, Minneapolis

68:79-116 (March) 1948

Peripheral Circulatory Disease and General Practitioner. H. O. McPheeters.—p. 79.
Student Health Service in Massachusetts Institute of Technology. D. L. Farnsworth.—p. 87.
Parenteral Nutrition: Preoperative and Postoperative Use of Glucose, Amino Acids and Alcohol: Preliminary Study. C. O. Rice, J. H. Strickler, B. Orr and D. Sanderson.—p. 91.
Treatment of Syphilis, with Special Reference to Penicillin. P. A. O'Leary.—p. 96.
Stumbling Blocks in Treatment of Fractures. F. E. Clough.—p. 100.
Diagnosis and Treatment of Acute Vascular Occlusions in Extremities. N. W. Barker.—p. 104.

Journal of the Mount Sinai Hospital, New York

14:941-990 (March-April) 1948

*Spontaneous Rupture of Papillary Muscle of Heart: Report of Three Cases and Review of Literature. S. Davison.—p. 941.
Reversible Bronchiectasis. H. Hennell.—p. 954.
Treatment of Chronic Discoid Lupus Erythematosus with Naphuride Sodium. R. Yontef.—p. 959.
Venous Thrombosis and Peripheral Pulmonary Embolization: Part I. Chapter 2. Atypical Forms of Venous Thrombosis. H. Neuhof.—p. 962.

Rupture of Papillary Muscle of Heart.—Davison reports 3 instances of spontaneous rupture of a papillary muscle of the heart in 2 men aged 55 and 63, respectively, and in a woman aged 69. Only 26 cases of spontaneous rupture of a papillary muscle of the heart have been listed in the literature and 2 additional cases were added by courtesy of personal communications. The condition is rare and defies diagnosis except at necropsy because of the almost immediate death of the patient following such rupture. Its antemortem diagnosis was established for the first time in 1 of the author's cases, in which the presence of a rough, harsh, systolic murmur and a questionable diastolic murmur, heard best at the mitral area and associated with the picture of myocardial infarction, strongly suggested the possibility of recently ruptured papillary muscle of the left ventricle. The great majority of spontaneous papillary muscle rupture occurred secondary to coronary artery occlusion and associated myocardial infarction, but in several instances a coronary artery thrombus was not demonstrated and arteriosclerosis of the coronary arterial tree was minimal. The disproportion between myocardial nutritional demand and coronary blood flow conceivably may be responsible not only for extensive papillary muscle necrosis in the absence of striking coronary artery disease, but may also exaggerate the myocardial lesions even in the presence of a thrombotic coronary artery occlusion. Coronary insufficiency may be the common denominator in spontaneous rupture of a papillary muscle with or without coronary artery occlusion. A meager collateral blood supply to the superficial bulbospiral muscle which forms the left posterior papillary muscle may be a contributing factor. The clinical diagnosis of a ruptured papillary muscle may be considered in a patient with evidence of recent myocardial infarction and with a change in the character and intensity of a murmur which antedated the infarction. The murmur is usually mitral in position and systolic in time, and becomes loud and harsh.

Journal National Malaria Society, Columbia, S. C.

7:1-84 (March) 1948

Malaria—Its Denouement? M. D. Hollis.—p. 1.
Potentiation of Curative Action of 8-Aminoquinolines and Naphthoquinones in Avian Malaria. H. A. Walker and A. P. Richardson.—p. 4.
Malaria Control Trends on Impounded Waters of Tennessee Valley. E. L. Bishop and E. H. Hinman.—p. 12.
Studies on Imported Malarias. 7. Parasitologic Pattern of Relapsing Plasmodium Vivax in Military Patients. D. E. Eyles and M. D. Young.—p. 23.
Effect of 3,3'Methylenebis (4 Hydroxycoumarin) "Dicumarol" on P. Lophurae Infection in Ducks. R. H. Rigdon and B. E. McCain.—p. 38.
Experience with Use of Permanent Works for Control of Anophelines on Impounded Water. F. E. Gartrell and C. C. Kiker.—p. 44.
Relationship Between Infectiveness and Densities of Anopheles Quadrimaculatus in Malarious Area in South Carolina. A. A. Weathersbee and W. C. Frohne.—p. 59.
Plasmodium Malariae in School Surveys in South Carolina. G. E. McDaniel and F. M. Hemphill.—p. 65.

Journal of Neurosurgery, Springfield, Ill.

5:107-212 (March) 1948

Benign Cysts of Brain: Analysis with Comparison of Results of Operative and Non-Operative Treatment in 30 Cases. J. H. Drew and F. C. Grant.—p. 107.
Conservative Treatment of Third Ventricle Tumors. A. Ward and R. G. Spurling.—p. 124.
Posterior Fossa Meningiomas. E. Campbell and R. D. Whitfield.—p. 131.
Sacral Nerve Innervation of Human Bladder. R. F. Heimburger, L. W. Freeman and N. J. Wilde.—p. 154.
Physiologic Studies of Arteriovenous Anomalies of Brain. H. A. Shenkin, E. B. Spitz, F. C. Grant and S. S. Kety.—p. 165.
Psychometric Testing of Patients Who Had Brain Tumors Removed During Childhood. L. A. French.—p. 173.
Changes in Internal Carotid Pressure During Carotid and Jugular Occlusion and Their Clinical Significance. W. H. Sweet and H. S. Bennett.—p. 178.

Journal of Nutrition, Philadelphia

35:287-398 (March) 1948. **Partial Index**

Studies on Comparative Nutritive Value of Fats: X. Reputed Growth Promoting Activity of Vaccenic Acid. H. J. Deuel Jr., S. M. Greenberg, Evelyn E. Straub and others.—p. 301.
Production of Functional and Fatty Changes in Liver by Chronic Vitamin B Complex Deficiency, and Interrelationships with Protein Intake. V. A. Drill and T. A. Loomis.—p. 333.
Nutritive Quality and Trypsin Inhibitor Content of Soybean Flour Heated at Various Temperatures. R. J. Westfall and S. M. Hauge.—p. 379.
Relation of Thiamine Clearance to Blood Levels in Man. M. C. Blanchaer and Eileen Cameron.—p. 391.

Journal of Urology, Baltimore

59:267-500 (March) 1948. **Partial Index**

Retropubic Prostatectomy. T. Millin.—p. 267.
*Retropubic Prostatectomy. O. S. Lowsley and A. Gentile.—p. 281.
Hypertension Treated by Nephrectomy. J. G. Moore.—p. 297.
Thrombosis of Left Renal Artery with Hypertension: Case Report. J. D. Shea, J. W. Schwartz and R. E. Kobilak.—p. 302.
Spontaneous Perirenal Hematoma Secondary to Periarteritis Nodosa. C. A. Fort.—p. 307.
Metastatic Tumors of Ureter. D. Presman and L. Ehrlich.—p. 312.
Tuberculous Prostatic Urethritis: Suggestive Diagnostic Sign. J. K. Lattimer.—p. 326.
Priapism Due to Sickle Cell Anemia. B. Levand and R. Stept.—p. 328.
Proliferative Tumors of Ureter and Renal Pelvis, with Further Observations on Significance of "Epithelial Cell Nests": Six Case Reports. D. P. Fagerstrom.—p. 333.
Rational Theory of Intestinal Distention and Its Urological Application. R. C. Begg.—p. 358.
Genital Manifestations in Early Filariasis. E. W. Beach.—p. 371.
*Retropubic Prostatectomy: An Extravesical Technic: Report of 32 Cases. S. K. Bacon.—p. 376.
Do Patients with Cancer of Prostate Gland Show Abnormal Metabolism of Therapeutic Doses of Natural Estrogens? J. A. May and B. F. Stimmel.—p. 396.
Modification of Blair Procedure for Repair of Hypospadias. D. R. Smith and H. M. Blackfield.—p. 404.
Reconstruction of Lower Segment of Ureter with Tube made from Bladder Flap: Preliminary Report. R. W. Barnes and S. Farley.—p. 466.
Polycystic Kidney Disease. M. M. Mayers.—p. 471.
Surgical Treatment of Nephritis. M. E. Pesqueira and E. Henriquez I.—p. 484.
Best Method of Prostatectomy for Benign Adenoma. A. L. Rivas.—p. 491.
Retrocaval Ureter: Case Report. P. P. B. McElhinney and J. W. Dorsey.—p. 497.

Retropubic Prostatectomy.—Lowsley and Gentile performed retropubic prostatectomy as developed by Millin of London in 28 patients. They found that this operation is possible in almost every type of prostatic obstruction, but they consider it feasible under the following conditions: in many cases of large adenomatous prostates that can be removed in one stage, when the patient's general condition does not warrant a traumatizing operation, when a shorter period of hospitalization is vital to the patient's health, and when, because of the patient's age, the maintenance of sexual function must be considered. The results of the operation are most gratifying. The authors have had no deaths, no persistent urinary fistula and no postoperative incontinence of urine. The patient's convalescence is more rapid and satisfactory than after any other type of prostatectomy and the period of hospitalization is substantially reduced. There is earlier urinary control than after other types of prostatectomy.

Retropubic Prostatectomy, Extravesical Technic.—Bacon says that since he saw retropubic prostatectomy demonstrated by Millin of London and van Gulik of Amsterdam he has performed the operation in 32 cases. He stresses that the operation is anatomically sound as no important organs are disturbed or endangered. All obstructing tissue is removed, thereby eliminating the risk of recurrence. There is practically no danger of postoperative or delayed hemorrhage, nor of persistent fistula, prolonged infection or urethral stricture. The procedure is done in a highly vascular area so that exact and prompt ligation of precapsular veins must be carried out. The postoperative period is relatively short. Retropubic prostatectomy avoids the disasters and indignities (rectourethral fistula, incontinence and impotence) of perineal prostatectomy. It is not applicable to prostatic fibrosis, bladder neck contracture or extensive carcinoma.

Medical Annals of District of Columbia, Washington

17:71-134 (Feb.) 1948

Review of Biliary Tract Surgery for Six-Year Period at Doctors Hospital. W. R. Morris and J. C. Murphy.—p. 71.
Current Problems in Biliary Tract Disease. A. Behrend.—p. 77.
Recognition and Management of Esophageal Diseases. H. W. Schmidt.—p. 81.
Clinical Studies in Schizophrenia. A. M. Duval.—p. 92.
Myeloid Reaction in Acute Tuberculosis. J. Spier and L. E. Cluff.—p. 98.

17:135-190 (March) 1948

Discussion of Clinical Application of Titered or Quantitative Serologic Tests for Syphilis. S. R. Taggart.—p. 135.
False-Positive Serologic Test. J. W. Love and E. E. Barksdale.—p. 143.
Newer Developments in Anesthesia. E. B. Touhy.—p. 149.
Present Trends in Gastric Surgery. J. H. Garlock.—p. 153.
Pregnancy Associated with Polyostotic Fibrous Dysplasia. R. B. Nelson.—p. 157.

Medicine, Baltimore

27:1-138 (Feb.) 1948

Surgical Relief of Severe Angina Pectoris: Methods Employed and End Results in 83 Patients. J. C. White and E. F. Bland.—p. 1.
Cinchopen (Atophan): A Critical Review. W. C. Hueper.—p. 43.
Potassium and Periodic Paralysis: Metabolic Study and Physiological Considerations. H. Gass, M. Cherkasky and N. Savitsky.—p. 105.

Military Surgeon, Washington, D. C.

102:251-334 (April) 1948. **Partial Index**

Mediterranean Medical Cruise—February, 1944. J. R. Darnall.—p. 251.
Medical Aspects of Atomic Energy. G. M. Lyon.—p. 269.
Preventive Medicine in Postwar Army. T. F. Whayne.—p. 274.
Some Problems Facing Naval Medical Officer in Arctic. H. B. Eisberg.—p. 278.
Medical Department Problems in Cold Weather Operations. F. J. Knoblauch.—p. 283.
Battle of Grand Central Palace: Observations at Induction Station. L. Carp.—p. 285.
*Dyspepsia in the Army—Mental Disease in Soldiers with Gastrointestinal Complaints. M. Kraemer.—p. 292.
Future of Army Medical Department. R. W. Bliss.—p. 298.

Dyspepsia in the Army.—Kraemer says that in the first World War a digestive neurosis was diagnosed in over one third of the patients admitted to the gastrointestinal service of a United States Army General Hospital. From the author's experience in station hospitals in the United States and a general hospital in the European Theater, despite more adequate roentgen and laboratory helps toward establishing a disease entity than were available in the last war, the incidence of psychoneuroses and allied disorders was as great or greater. The author comments on the high incidence of a history of dyspepsia in soldiers who were admitted to the neuropsychiatric service and on the reasons why many mentally unfit men in the Army were not recognized and eliminated. He is convinced that attempts at rehabilitation of persons with dyspepsia lead nowhere unless a special diet and protected existence can be provided. At best, these patients are fussy eaters. Numerous foods disagree with them. No regular army mess is adequate for them. A few might be retained as service personnel in large hospitals in the United States.

Missouri State Medical Assn. Journal, St. Louis

45:171-248 (March) 1948

Acute Perforation in Gastric Carcinoma. J. Modlin.—p. 187.
Principles in Treatment of Benign Prostate Enlargement. A. L. Stockwell.—p. 189.
Gout: Review of Diagnosis and Management. P. O. Hagemann.—p. 192.
Missouri State Blind Program. A. J. Baer, Jr.—p. 195.
Amputation by Pressure Necrosis: Description of Simple Device. C. E. Sanders.—p. 196.
Significance of Potassium and Bromide in Metabolism. R. Uhlmann.—p. 198.
Recurrent Mumps Versus Recurrent Parotitis: Case Reports. C. L. Kline and L. S. Highsmith.—p. 200.

45:249-320 (April) 1948

Unusual Anomalies of Gallbladder and Bile Duct. B. L. Sinner.—p. 265.
Occurrence of Endemic Typhus Fever in Kansas City, Missouri. V. B. Buhler and M. J. Mueller.—p. 267.
Benign Polyp of Jejunum Causing Unexplained Hemorrhage: Case Report. J. C. Edwards.—p. 273.
Urine vs. Blood Serum in Friedman's Test for Pregnancy. C. F. Kent.—p. 275.
Pyloric Obstruction Due to Gastric Diverticulum: Report of Case. J. G. Probstein and L. A. Sachar.—p. 276.
Critical Analysis of Recent Methods of Treatment of Thromboembolic Disease. H. M. Wiley, J. A. Ossman and E. D. Sugarbaker.—p. 278.

New England Journal of Medicine, Boston

238:421-456 (March 25) 1948

*Treatment of Arterial Embolism. R. Warren and R. R. Linton.—p. 421.
Idiopathic Hyperlipemia. W. C. Hopgood.—p. 429.
*Streptomycin Treatment in Acute Brucellosis: Report of Case with Review of Literature. C. Howe and J. T. Heyl.—p. 431.
Value of Special Auricular Lead and of Carotid-Sinus Pressure in Electrocardiographic Diagnosis of Tachycardias and Other Disorders of Heart Beat. L. B. Ellis, L. W. Lannan and J. M. Faulkner.—p. 434.
Diabetes. E. P. Joslin, L. P. Krall, C. C. Bailey and others.—p. 437.
Intradural Lipoma of Sacral Canal. Spina Bifida Occulta.—p. 443.
Congenital Atresia of Hepatic and Cystic Ducts.—p. 446.

Treatment of Arterial Embolism.—Warren and Linton cite the various new measures that permit conservative treatment of arterial occlusion, such as intermittent positive and negative pressure, interruption of the sympathetic pathways, either surgically or otherwise, or the use of heparin. It was

with these new treatments in mind that the authors decided to investigate what place, if any, embolectomy should play in the treatment of arterial occlusion. They investigated the records of 98 patients who had 172 arterial emboli during the period 1937 to 1946. Conservative treatment was available during the whole ten year period. In 1937 and 1938 the principal conservative methods used were papaverine, paravertebral procaine block and the pavex boot for the administration of intermittent suction and pressure. After 1939 the pavex boot gave place largely to intermittent venous occlusion and the oscillating bed. The use of the other conservative methods was continued. Since most of the nonoperative methods were used in combination, their efficacy cannot be evaluated individually. Twenty-one patients were operated on, 4 having two operations each. Four emboli were removed in 3 patients who died so soon that the effect of operation on the limbs could not be determined, but of 21 patients in whom results could be analyzed, 18 survived. In the 3 cases in which the limbs were lost there was technical difficulty in removing the embolus, in 2 cases because the clot was adherent to the artery. In nearly two thirds of conservatively treated arterial emboli the limb was preserved. Thirty-eight of the 98 patients died in the hospital. Although available conservative weapons are valuable adjuncts to surgery, surgical embolectomy is the treatment of choice in peripheral artery embolism.

Streptomycin in Acute Brucellosis.—Howe and Heyl review previous reports on the use of streptomycin in acute brucellosis. Because of equivocal results observed to date the authors present an instance of infection due to Brucellus abortus, in which streptomycin was used with some evidence of therapeutic effect. The patient was a man aged 52 who two weeks before admission had had a shaking chill, which was followed by daily afternoon elevations in temperature to 100 to 102 F. and profuse night sweats. He had consumed unpasteurized milk on numerous occasions. Streptomycin did not become available for use in this case until five weeks after the patient's admission, and a control period of observation in which no chemotherapeutic or antipyretic agents were administered was thus allowed. Fifty-eight days after the onset of the illness, a course of streptomycin was started. The patient was given a total of 60 Gm. in daily doses of 6 Gm. (1 Gm. every four hours) over a period of ten days. A review of previously reported cases of brucellosis treated with streptomycin indicates that patients in whom the highest blood levels of drug were maintained for even relatively short periods showed more signs of response than those in whom lower blood levels were maintained over relatively longer periods. Therapy at high dosage, however, is not without risk of streptomycin intoxication, as evidenced by the slight though definite vestibular impairment persisting in this patient.

238:457-492 (April 1) 1948

*Clinical Aspects of Normal Electroencephalogram in Epilepsy. J. A. Abbott and R. S. Schwab.—p. 457.
Spontaneous Pneumothorax: Clinical Study of 100 Consecutive Cases. R. M. Myerson.—p. 461.
*Streptomycin Treatment of Bacterial Endocarditis: Report of a Case. B. F. Massell, J. W. Zeller, J. W. Dow and D. Harting.—p. 464.
*Malaria: Observations on Treatment with Chloroquine (SN 7618) and Combined Quinine and Plasmochin. T. A. Warthin, S. A. Levine and R. R. Evans.—p. 467.
Exfoliative Dermatitis Due to Codeine. J. H. Moyer.—p. 469.
Diabetes. E. P. Joslin, L. P. Krall, C. C. Bailey and others. —p. 471.
Hypertrophy and Dilatation of Heart.—p. 477.
Bronchiogenic Carcinoma of Right Lower Lobe Bronchus, with Extension to Esophagus and Metastases to Mediastinal Lymph Nodes, Liver and Omentum.—p. 480.

Electroencephalogram in Epilepsy.—Abbott and Schwab investigated 193 patients attending the Epileptic Clinic of the Nerve Out-Patient Department at the Massachusetts General Hospital. Epileptic patients each showing at least one normal electroencephalogram between seizures and those showing only abnormal electroencephalograms between seizures were compared with reference to ten other aspects of the disease. All ten comparisons were favorable to the patients with normal records. In the patients with normal electroencephalograms there were later onset, fewer different kinds of spells, less frequent spells, greater response to medicine, more remissions while off medicine, more spells during sleep and greater ability to work, whereas patients with abnormal records had had spells in infancy, head injuries or other encephalopathies and positive family history of epilepsy.

Streptomycin in Bacterial Endocarditis.—Massell and his associates report the case of a girl, aged 9, in whom streptomycin proved effective in the treatment of endocarditis caused by a gram-negative organism belonging to the genus Hemophilus. The causative organism was isolated and its sensitivity to the drug in vitro determined before treatment was started. The concentration of streptomycin maintained in the blood was never less than twice and rose as high as fifteen times that required to inhibit the organism in vitro. A short intensive course of streptomycin eradicated the infection. The patient is perhaps first of this kind to recover without any other therapy than streptomycin, and the recovery followed a shorter course of treatment than would ordinarily be planned. Treatment was started with 2 Gm. of streptomycin daily, given in eight divided doses at three hour intervals by intramuscular injection. The patient improved during the first five days of treatment, until it became necessary to use a different brand of streptomycin. The second lot caused fever and local irritation so severe that treatment had to be discontinued after a total of only 13.5 Gm. had been given in six and a half days. The patient was well and active one year after the completion of therapy.

Malaria.—Warthin and his associates say that during the year of July 1946 to July 1947 125 patients with proved malaria due to Plasmodium vivax, all of Pacific origin, were admitted to the Veterans Administration Hospital, West Roxbury, Mass. All had received suppressive quinacrine therapy while stationed in malarial zones, and most had been given various doses of quinacrine for prior clinical attacks. Once a positive smear had been obtained, either of two methods of treatment was offered. Those who desired as short a period of hospitalization as possible were treated with chloroquine diphosphate. The dosage was 1 Gm. (four tablets, each containing 0.25 Gm. of the diphosphate) followed in eight hours by 0.5 Gm. (2 tablets). A single dose of 0.5 Gm. was administered on the second and third days of treatment. Most patients were discharged on that day, with instructions to take 0.5 Gm. (two tablets) every Sunday for five weeks. Patients who complained of over five recurrent attacks of malaria and those who were able to spend two weeks in the hospital were placed on the combined quinine-pamaquine regimen as outlined by Most and associates. Pamaquine naphthoate, in 0.02 Gm. doses, was administered every eight hours for fourteen days. Quinine sulfate was prescribed in 1 Gm. doses every eight hours for one day followed by 0.6 Gm. every eight hours for thirteen days. Follow-up examination was identical to that for patients treated with chloroquine. The authors found that chloroquine (SN 7618) is easier to administer and does not have the yellow dye discoloration effect of quinacrine. Clinically, it was no more effective in preventing relapses than quinacrine. The combined quinine and pamaquine regimen has greatly reduced the relapse rate.

Northwest Medicine, Seattle

47:165-236 (March) 1948

Differential Diagnosis and Treatment of Leukemias. E. E. Osgood. —p. 181.
Surgical Aspects of Hemorrhagic Diseases. A. J. Quick.—p. 186.
*Superficial Gangrene of Extremities Due to Ergot Poisoning. R. H. Loe. —p. 190.
Bacillus Pyocyaneus Septicemia: Report of Case. W. A. Chesledon, M. P. Starr and N. R. East.—p. 192.
Effectiveness of Propyl Thiouracil in Treatment of Hyperthyroidism. R. E. Hibbs and E. P. McCullagh.—p. 192.
Acute Benadryl Intoxication: Case Report. M. P. Starr Jr. and R. M. Rankin.—p. 195.
Diagnosis and Treatment of Stones in Common Bile Duct. J. W. Geehan.—p. 195.
Congenital Atresia of Bile Ducts. J. L. Vadheim and E. P. Nelson. —p. 197.
Varicose Veins of Lower Extremities. M. S. Rosenblatt.—p. 200.

Gangrene Due to Ergot Poisoning.—Loe presents the case of a man, aged 46, who was admitted to the hospital with gangrene of both feet. His present illness began twenty-one days previously, when he was undergoing treatment for jaundice and pruritus in another hospital. Approximately four days after the therapy was started he complained of burning

sensations in his feet and legs, and the nurse discovered that both feet were turning black. His physician stated that he had given the patient six injections of "ergotrate" (0.2 mg. ergonovine maleate per ampule) over a period of three days, for the purpose of controlling a severe pruritus. The drug was discontinued as soon as the gangrene became apparent. Amputation was delayed because of the presence of arterial pulsations. Gradually the skin was exfoliated. The right foot healed without amputation, but parts of the toes of the left foot had to be amputated. The importance of recognizing the prodromal symptoms of ergotism cannot be overemphasized, for in this stage cessation of the administration of the drug and therapy can prevent irreparable damage. These symptoms are coldness, cramps and paresthesias such as tingling, numbness and burning. Paleness and mottling of the skin precede gangrene. Therapy should be directed at dilating the arteriolar vessels. Papaverine has been used successfully. Vascular exercises and reflex heat have also been employed. Use of heparin and "dicumarol" should also be of value in preventing or limiting the formation of thrombus. Theoretically lumbar sympathetic block should be beneficial when "ergotrate" is the acting agent but not when ergotamine tartrate is the offending factor, since the former acts centrally on the sympathetic nervous system and the latter on the myoneural junction. Development of gangrene does not call for immediate surgery. A period of waiting may demonstrate that a large part of the gangrenous area involves only the superficial layers of the skin. Reports indicate that relatively small doses of ergot may produce gangrene in persons who are susceptible to the drug.

Oklahoma State Medical Assn. Jour., Oklahoma City

41:79-114 (March) 1948

Leiomyosarcoma of Urinary Bladder. J. Fulcher.—p. 82.
Congenital Renal Anomalies and Complications. W. F. Lewis.—p. 83.
Present Day Management of Trachoma. F. D. Switzer.—p. 87.
Treatment of Mastoiditis. H. C. Ford.—p. 98.
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41:115-174 (April) 1948

Obstruction at Vesical Neck. C. D. Creevy.—p. 118.
Thromboembolism. R. G. Stoll.—p. 121.
Fresh Fractures of Carpal Scaphoid. L. S. Sell.—p. 124.
Simplified Safer Caudal Anesthesia. L. C. Northrup.—p. 126.
Acute Infectious Lymphocytosis: Case History Showing Central Nervous System Involvement. W. E. Parrish.—p. 128.

Philippine Medical Association Journal, Manila

24:61-94 (Feb.) 1948. **Partial Index**

Demerol and Scopolamine in Obstetrics. G. Rustia and L. Almeda.—p. 61.
Study of Maternal Deaths in the Philippine General Hospital. A. Baens.—p. 75.
Duration of Pregnancy in Filipino Women (Preliminary Report). C. B. Tejada.—p. 83.
Uterus Didelphys. J. S. Galang.—p. 89.
Treatment of Hyperemesis Gravidarum with Hormone and Vitamin. J. Hidalgo.—p. 93.

Plastic and Reconstructive Surgery, Baltimore

3:109-244 (March) 1948. **Partial Index**

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Surgical Correction of Developmental Deformities of Mandible. R. O. Dingman.—p. 124.
Langer's Lines and Facial Scars. L. R. Rubin.—p. 147.
Surgical Treatment of Recurrent Carcinoma of Breast and Chest Wall. K. L. Pickrell, J. W. Kelley and F. A. Marzoni.—p. 156.
Construction of Skin-Tube Esophagus, Following Surgical Treatment of Tracheo-esophageal Fistula. R. H. Ivy, H. R. Hawthorne and J. A. Ritter.—p. 173.
Stein-Estlander-Abbe Operation: A Centenary in Plastic Surgery. P. Fogh-Andersen.—p. 186.
Radical Excision and Skin Grafting of Leg Ulcers. D. Teplitsky, R. N. Shapiro and G. W. Robertson.—p. 189.
Tendon Transfer to Restore Abduction of Index Finger Using Extensor Pollicis Brevis. J. M. Bruner.—p. 197.
*Cancellous Bone Grafts for Restoration of Nasal Contour. B. C. Martin.—p. 202.
Early Maxillo-Facial Surgery, World War II. M. S. Travin.—p. 209.
Note on Use of Grated Cadaver Cartilage. J. Penn, J. Jankowitz and A. Bruwer.—p. 228.

Cancellous Bone Grafts for Nose.—Martin used cancellous bone for the restoration of the nasal contour in 15 cases. Six of these cases involved war injuries. The author uses the midcolumella incision because it gives the best exposure of the dorsum of the nose and the nasal spine of the maxilla. This incision makes it possible to dissect an adequate pocket for the strut. In undermining the dorsum of the nose an attempt is made to stay beneath the periosteum. An iliac crest is exposed and the cortical portion elevated with a saw. An appropriately sized block of cancellous bone is removed and shaped. A groove is placed in the posterior surface near the distal end of the graft which overlies the dorsum of the nose. The tip of the graft is elevated to the desired height and the length of the strut necessary is estimated. The strut is then cut off and fitted into the groove. The incision is closed and mattress sutures placed through the columella and tied over lead plates to relieve tension. Immobilization is effected by nasal packing and a nasal splint of lead plates. The grafts are usually secure in ten to fourteen days. The method was successful in all cases. The author feels that cancellous bone grafts are superior to autogenous cartilage. They are more easily secured; the site of the scar is well hidden and they are readily shaped and show no tendency to buckle or warp. They are more resistant to infection.

Radiology, Syracuse, N. Y.

50:283-438 (March) 1948

Therapeutic Radiology. D. Quick.—p. 283.
*Roentgen Treatment of Multiple Myeloma. L. H. Garland and B. R. Kennedy.—p. 297.
Histologic Changes in Squamous-Cell Carcinoma of Mouth and Oropharynx Produced by Fractionated External Roentgen Irradiation. J. W. Hall and M. Friedman.—p. 318.
Suppurative Bronchopneumonia with Cavitation. S. P. Perry and R. Shapiro.—p. 351.
Roentgen Findings in Functional Disturbances of Gastro-Intestinal Tract. P. C. Swenson and W. E. Manges.—p. 365.
*External Irradiation with Roentgen Rays and Radium in Treatment of Human Leukemias, Lymphomas, and Allied Disorders of Hemopoietic System. Anna Hamann.—p. 378.
Chemotherapy in Human Lymphomas, Leukemias, and Allied Disorders of Hemopoietic System. C. L. Spurr, T. R. Smith and L. O. Jacobson.—p. 387.
Simple Pelvimeter to be Used with Triangulation Method of Pelvimetry. T. A. Kendig.—p. 395.

Roentgen Treatment of Multiple Myeloma.—Garland and Kennedy review the results of roentgen treatment of multiple myeloma as reported in the literature and in a series of 13 patients, 6 men and 7 women between the ages of 31 and 72 years, treated at the San Francisco Hospital. In the latter series the maximum tissue dosage to any one lesion, calculated to the middle of the principal tumor in the area treated, varied from 200 r in one day to 2,800 r in twenty days. Six of the patients showed improvement, 6 were not appreciably benefited and 1 had incomplete treatment. One of the patients survived over nine years and is still living; he is ambulatory and in good clinical condition, despite an initial grave paraplegia. The average survival for the remaining patients with proved myelomas treated roentgenologically was 10.4 months, while that of the untreated patients was only 2.3 months. These results are distinctly inferior to those of Batts, who reported a survival period of twenty-three months in an irradiated group and six months in an untreated group. This difference may be due to variation in the stage of the disease in the two groups, plus variation in the roentgen dosage in some of the authors' cases. Adequate irradiation of patients with multiple myeloma is still worth attempting, though the results will unquestionably disappoint those who accept commonly published statements that these lesions are "very radiosensitive."

Irradiation in Leukemia and Allied Disorders.—Hamann reviews 337 cases of blood dyscrasias in 203 men and 134 women treated by external irradiation in Billings Hospital, Chicago, during the period 1929 to 1945. One hundred and ten patients had leukemia, 143 had Hodgkin's disease, 77 had lymphosarcoma and 7 had polycythemia rubra vera. In one group of patients in advanced stages of Hodgkin's disease and lymphosarcoma who had received extensive irradiation with decreasing response, treatment was carried on with nitrogen mustards (beta-chloroethylamines). A second group of patients with the same diseases, with or without previous roentgen therapy, were referred for local irradiation after nitrogen mustards had failed to decrease the size of large tumors. In an obese woman with a reticulum cell sarcoma confined to the pelvic lymph nodes,

intravaginal application of radium followed external roentgen irradiation. In a patient in the final stage of Hodgkin's disease an analgesic effect was obtained with a radium mold. Roentgen therapy of leukemia, Hodgkin's disease and lymphosarcoma, judiciously given with the present methods, is an effective palliative measure with a great safety margin and few complications. It finds its broadest indication as local irradiation of the various foci of disease. The efficacy of total body irradiation as to a systemic effect and the effect on generalized and subclinical foci is less cleancut. It is in these respects that the therapeutic use of radioactive isotopes and chemical compounds might be advantageous, but the author's experience with nitrogen mustard compounds does not yet allow valid conclusions. The high dosage required for effective roentgen therapy of polycythemia vera does not allow frequent courses of treatment.

Review of Gastroenterology, New York

15:261-348 (April) 1948

*Ultraviolet Blood Irradiation Therapy in Acute Virus and Virus-Like Infections. G. P. Miley and J. Christensen.—p. 271.
*Pathogenesis of Adenomatous Polyps in Relation to Malignancy of Large Bowel. H. E. Bacon and G. G. Broad.—p. 284.
Prevention of Gastroduodenal Ulcer. D. Cook.—p. 296.
Applied Anatomy of Infants and Children in Proctology. S. Schapiro. —p. 307.
New Protein Hydrolysate for Treatment of Peptic Ulcer. N. Steinberg. —p. 319.

Ultraviolet Blood Radiation Therapy.—Miley and Christensen treated 79 consecutive patients who had acute virus or virus-like infections with ultraviolet radiation of the blood. The technic of this therapy consists of withdrawing approximately 3 per cent of a patient's total blood volume, citrating the withdrawn blood and immediately passing the citrated blood through a Knott hemoirradiator, which exposes the blood safely and efficiently to high intensity ultraviolet rays. The irradiated blood is then returned to the patient's venous circulation. All the 43 patient's with early and of the 27 with moderately advanced infection rapidly recovered, and 8 of 9 of the apparently moribund ones. The subsidence of toxic symptoms in patients with poliomyelitis of bulbospinal and spinal type, with primary atypical or "virus" pneumonia, with mumps and with acute herpes, occurred with striking regularity within twenty-four to seventy-two hours. No ill effects were noted. The mechanism by which this method acts is not definitely known, but it seems highly probable that the resistance of the host is raised rapidly and efficiently by a direct stimulating and energizing effect after the intravenous induction of ultraviolet energy. It is strongly suggested that ultraviolet irradiation of the blood may be observed to be the ideal method of controlling acute virus or virus-like infections safely and efficiently.

Pathogenesis of Adenomatous Polyps.—According to Bacon and Broad, five factors point to a close relationship between intestinal adenoma and cancer: Intestinal adenomas develop into the malignant state in a significant proportion of cases. The appearance of adenomas precedes or accompanies the general cancer age group. The sigmoid and rectum contain the greatest numbers of carcinomas of the large bowel; the frequency of the location of intestinal adenomas is likewise the greatest in the same area of the large intestine. There is a frequent coexistence of cancer and adenomatous polyps in the same person. A patient who has the inherent tendency toward having intestinal adenomas may have one or more of them, cancer in the same region, or various combinations of both. Intestinal adenomas are to be considered as premalignant lesions and should be treated by destruction or removal.

Texas State Journal of Medicine, Fort Worth

43:671-742 (March) 1948

Treatment of Diabetes Mellitus in Children. W. E. Nelson.—p. 677.
Diverticulosis and Diverticulitis. J. T. Boyd.—p. 681.
Early Ambulation Following Major Surgery. R. H. Bell.—p. 686.
Controversial Details of Complete Hysterectomy. H. O. Jones.—p. 688.
Preglaucoma. S. K. Stroud.—p. 690.
Adenomatoid (Angiomatoid) Formations of Genital Organs. H. Davenport Jr.—p. 694.
Houston's Welcome. W. H. Hamrick.—p. 698.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

23:1-68 (March) 1948

*Pediatric Approach to Tonsillectomy. J. A. Glover.—p. 1.
Further Observations on Significance of Blood Pyruvic Acid Level in Infancy. E. C. Allibone.—p. 7.
Puberty Growth of Boys. R. W. B. Ellis.—p. 17.
Etiologic Aspects of Gastro-Enteritis. E. Hinden.—p. 27.
Salicylate Therapy in Children. G. F. Maggioni.—p. 40.
The pH of Mouth in Newborn Infant. J. Thomson.—p. 48.
Azotemia in Infancy. S. A. Doxiadis.—p. 50.

Pediatric Approach to Tonsillectomy.—Glover believes that pediatricians should approach the problem of tonsillectomy with caution. The incidence of tonsillectomy remains excessive, particularly in children between 5 and 7 years of age. This age distribution suggests that many tonsillectomies are performed because of enlargements which are either physiologic, associated with the great changes in development during this critical period, or immunologic responses to the unaccustomed infections met with on entry to school or to the sepsis resulting from the decay of the primary teeth. Tonsils cannot be determined as "diseased" or "infected" by clinical examination. As their function includes the arrest of pathogenic organisms, the fact that these can be found in them is no justification for operation. Tonsillectomy should command the respect due to a major operation. In some cases it is followed by unpleasant sequelae. It has a mortality which, though small, is larger than is generally appreciated. Tonsillar remnants may be more harmful than the original tonsils. The most reliable indication is the occurrence of frequently repeated attacks of acute tonsillitis which cannot be explained by extraneous infection. Indications such as frequent colds, chronic nasal catarrh and otitis media are misleading. To remove the tonsils to cure sinusitis is to put the cart before the horse. Certain other conditions including bronchitis, asthma and nephritis are definitely contraindications. The value of the operation in benefiting acute rheumatism is doubtful. The incidence of otitis and mastoid disease is the same or perhaps slightly increased in the tonsillectomized, while their liability to bronchitis and pneumonia is increased.

British Medical Journal, London

1:427-484 (March 6) 1948

Chondromalacia Patellae. C. Gray.—p. 427.
*Vitamin D in Treatment of Cutaneous Tuberculosis. G. B. Dowling, Suzette Gauvain and E. G. Macrae.—p. 430.
Hypertension: Etiology and Surgical Treatment. G. Bourne.—p. 435.
*Role of Sympathetic Nerve in Cancerous Pain: Inquiry on 300 Cases. M. Dargent.—p. 440.
Aseptic Necrosis of Pancreas Due to Arterial Thrombosis in Malignant Hypertension. W. Pagel and A. L. Woolf.—p. 442.
*"Temporal Arteritis": Aspects of Subacute Arteritis in Later Life. G. H. Jennings.—p. 443.
Three Cases of Synovioma. V. C. J. Harris.—p. 447.
Balantidial Dysentery: Report of a Fatal Case in Assam. A. A. Miller and C. R. Peck.—p. 448.
Intrauterine Rupture of the Umbilical Cord. G. Bancroft-Livingston. —p. 449.

Vitamin D in Cutaneous Tuberculosis.—Dowling and and his associates report 44 cases of lupus treated with calciferol. Of the 34 adult patients, 30 have been discharged free from clinical evidence of lupus, and in the remaining 4 treatment is being continued. Of the 30 patients who have been discharged, 8 at some time showed signs of relapse. These relapses have responded well to further treatment. Many of the adults appeared to be worse during the early weeks of treatment with increase in redness and swelling and occasionally spontaneous ulceration. This was followed by gradual subsidence, pallor, and shrinkage of inflammatory swelling. Evidence of tuberculosis has disappeared in 7 of 10 children treated with calciferol; in the other 3 treatment is being continued. Calciferol was given also to 31 adults with noncutaneous tuberculosis. Most of them had tuberculous adenitis of the neck. Tuberculous tenosynovitis, peritonitis, bladder disease, dactylitis and disease of various joints were also treated. The results have been good, particularly with the lymph nodes. Subsequent excision has been made easy. Calciferol appears to have no direct action on the tubercle bacillus. It has an effect similar to that of the

Gerson-Herrmannsdorfer diet, cod liver oil, heliotherapy and light baths—in all of which the common factor is a relative abundance of vitamin D—but it produces this effect far more rapidly and completely than the older methods. Since local manifestations of tuberculosis are part of a general disease, the patient requires good food, fresh air and adequate rest.

Sympathetic Nerve in Cancerous Pain.—According to Dargent, pain-relieving operations on the sympathetic nerve in patients with evolutive carcinoma have been widely discussed. The inquiry he started in 1940 under the direction of Leriche has enabled him to gather anatomicopathologic data, to define the clinical features of sympathetic pain and to determine the limits of such operations. At first, the author performed after a successful cocaine infiltration test, surgical sympathetic nerve resections. Since only temporary relief was obtained, he gave up this operation, as he found that repeated cocaine infiltrations had produced more lasting results. He has performed over 300 infiltrations of cervical, thoracic and lumbar portions of the sympathetic trunk. He injects from 20 to 40 cc. of a 1 per cent solution of "scurocain" (procaine hydrochloride). Anatomic studies revealed that lesions are to be found in the sympathetic trunk and ganglions, as well as signs of reaction in the arterial wall in contact with cancerous lymph nodes—which explains the sympathetic origin of pain in some cases of evolutive cancer. The involvement of the sympathetic nerve in pain due to compression or involvement of peripheral nerves and pain produced by periosteal lesions is of a more accessory character. The pain is greatly relieved by cocaine infiltrations of the sympathetic trunks. This procedure, which is simple, should be preferred to operations on the sympathetic nerve.

"Temporal Arteritis."—The disorder appears mainly in persons over 60 years of age. Severe protracted headaches and signs of inflammation of the temporal arteries often appear early and facilitate diagnosis, but it seems that the term "temporal arteritis" is inadequate. Although inflammation of the temporal arteries has characterized nearly all the cases described, the whole aspect has been that of a prolonged general infection with widespread, if patchy, arterial involvement. Jennings believes that this condition probably occurs more frequently than is suggested by the approximately 44 cases hitherto reported in the literature. Four recent cases illustrate the chief features of "temporal arteritis," such as its occurrence in the aged, the persistence and severity of the headaches, the protracted course, the widespread involvement of the arteries and pathologic aspects which suggest that the arteries are involved in a low grade inflammation which differs to some extent from other known forms of arteritis. Treatment is chiefly palliative; a combination of acetylsalicylic acid and phenacetin will give hours of relief in all but the most severe cases. The addition of diacetylmorphine or codeine will be required in the more severe cases to give sleep at night. Removal of a part of an inflammed temporal artery has been found to diminish the headache in some cases.

Indian Medical Gazette, Calcutta

82:511-558 (Sept.) 1947. **Partial Index**

*Treatment of Relapsing Malaria with Specific Antimalarial Drugs in Combination with Penicillin. P. L. Deshmukh.—p. 511.
Clinical Features of Murine Typhus. B. Bhattacharjya.—p. 514.
Scrub Typhus: Variations in Clinical Symptoms and Strains. S. L. Kalra.—p. 516.
*Sulfadiazine in Treatment of Cholera. C. L. Pasricha, B. M. Paul, A. C. D. Gupta and A. K. Das.—p. 518.
*Sulfaguanidine in Treatment of Cholera. C. L. Pasricha, B. M. Paul, A. C. D. Gupta and A. K. Das.—p. 518.

Antimalarials and Penicillin in Treatment of Malaria.—With a view of finding a treatment that will check the acute attack and also control the relapses of malaria, Deshmukh investigated the effect of quinine in conjunction with penicillin. Of the 6 successfully treated cases, 2 typical cases are reported. Penicillin seems to have a synergic action on quinine in the control of acute attacks of malaria. Penicillin in conjunction with quinine and quinacrine is believed to be useful in controlling quickly the acute attacks and the relapses. The treatment is based on the rationale that the usual specific antimalarial drugs control the erythrocytic stage while penicillin controls the preerythrocytic stage of the malarial parasite.

Sulfadiazine in Cholera.—Comparing the effects of the usual supportive treatment in 423 cholera patients with the results obtained when this treatment was combined with sulfadiazine in 425 patients, Pasricha and associates found that the death rates in the two groups were 9.5 and 8.2 per cent, respectively. Another series of 451 patients treated with sulfadiazine was compared with a parallel series of 463 treated with sulfaguanidine. The mortality in the sulfadiazine series was 7.9 per cent, whereas in the sulfaguanidine series it was 4.3 per cent. These results indicate that sulfadiazine has no appreciable effect on the mortality of cholera.

Sulfaguanidine in Cholera.—A series of 1,118 hospitalized cholera patients were treated with sulfaguanidine, and the death rate was 3.7 per cent. A parallel series of 1,170 controls were treated in exactly the same way but not given sulfaguanidine, and the death rate was 7.5 per cent. A series of 60 cholera patients were treated with sulfaguanidine in village homes. No supportive treatment was possible. The death rate in this series was 18.3 per cent, whereas in a parallel control series of 59 cases, the death rate was 40.7 per cent. Sulfaguanidine is thus of considerable value in the treatment of cholera.

Lancet, London

1:353-392 (March 6) 1948

Connections of Frontal Lobes of Brain. W. E. Le Gros Clark.—p. 353.
Functions of Frontal Lobes. W. R. Russell.—p. 356.
Imbalance of Vitamins with Particular Reference to Folic Acid. L. S. P. Davidson and R. H. Girdwood.—p. 360.
Melioidosis Treated with Sulfonamides and Penicillin. E. J. Harries, A. A. G. Lewis, J. W. B. Waring and E. J. Dowling.—p. 363.
Myanesin in Hyperkinetic States. A. R. Hunter and Joan M. Waterfall.—p. 366.
Myanesin as Aid to Anesthesia in Children. H. B. Wilson and Helen E. Gordon.—p. 367.

1:393-432 (March 13) 1948

Brachial Neuralgia. W. R. Brain.—p. 393.
Formation of Hepatic Glycogen in Normal Africans and in Those Suffering from Malignant Malnutrition. E. G. Holmes and H. C. Trowell.—p. 395.
Spinal Cord Lesions in Cerebrospinal Fever: Report of 4 Cases. J. W. A. Turner.—p. 398.
Necrobacillosis: Report of 2 Cases. G. D. Owen and M. S. Spink.—p. 402.
Recovery of Streptomycin from Urine. J. Miller and D. Rowley.—p. 404.
Carcinoid Causing Obstruction. G. J. Fraenkel.—p. 404.
Massive Tonsillar Lymphatic Adenitis. J. D. Gray and J. Garson.—p. 406.
Clicking Pneumothorax Related to Walking. A. B. Black.—p. 408.

Medical Journal of Australia, Sydney

1:221-248 (Feb. 21) 1948

Regulation of Body Temperature. C. Brooks.—p. 221.
Diagnosis, Prevention and Treatment of Puerperal Infection. A. M. Hill and H. M. Butler.—p. 227.

1:249-284 (Feb. 28) 1948

Nonsuppurative Hepatitis: Study of Acute and Chronic Forms with Special Reference to Biochemical and Histologic Changes. I. J. Wood, W. E. King, P. J. Parsons and others.—p. 249.
Control of Sex and Reproductive Functions. C. Brooks.—p. 261.

1:285-320 (March 6) 1948. **Partial Index**

Proteins in Health and Disease. F. S. Hansman.—p. 285.
Role of Appetite and Hunger in Control of Nutritional Balance. C. Brooks.—p. 292.
Hemangioxanthoma of Brain: Study of 8 Cases of So-Called "Pseudo-Xanthomatous" Hemangioblastoma. V. J. McGovern and B. D. Wyke.—p. 297.

Proceedings of Royal Society of Medicine, London

41:73-132 (Feb.) 1948. **Partial Index**

Modern Trends in Prostatic Surgery. W. W. Galbraith.—p. 73.
*Influence of Small Animal Breeder on Biologic Research. R. E. Glover.—p. 85.

Breeding of Laboratory Animals and Biologic Research.—Glover shows that the worker in biology depends in no small measure on the quality of the animals available to him for experimental purposes. The breeder who provides the stock plays an important role, for the conditions under which animals are raised in the breeding establishments may profoundly influence the results of the scientific worker. The author has confined himself to three phases of the care and maintenance of normal stock: (1) the influence of diet on susceptibility and resistance; (2) the influence of disease, particularly latent infections, on biologic research, and (3) steps which may be taken to coordinate and improve breeding animals.

Acta Ophthalmologica, Copenhagen

25:353-464 (Nr. 4) 1947. **Partial Index**

*Maternal Rubella During Pregnancy as Cause of Congenital Cataract and other Congenital Malformations. M. Bardram and P. Broendstrup.—p. 353.
Aqueous Veins. T. L. Thomassen.—p. 369.
Medicinal Treatment of Intraocular Hypertension (Action of Diisopropylfluorophosphonate). R. Weekers.—p. 377.
Roentgen Treatment of Scleritis. O. Blegvad.—p. 397.
Rosacea in Corneal Graft. M. Katavisto.—p. 417.
Histamine Content of Aqueous Humor During Intravenous Injection of Histamine. N. Emmelin and E. Palm.—p. 439.

Maternal Rubella and Congenital Malformations.—Bardram and Broendstrup report 8 infants with cataract and other congenital defects, such as microphthalmos, buphthalmos, pigmentary degeneration of the retina, incomplete iris coloboma, cardiac disease and long fingers and trunk. The mothers in all of these cases had had rubella during the first months of pregnancy. Observations in these cases confirm the causal relationship between congenital malformations and rubella in the mother as reported from several parts of the world.

Acta Tuberculosea Scandinavica, Copenhagen

21:241-322 (No. 4) 1947

Postexamination of BCG Material. E. Törnell.—p. 241.
Optimum Time for Intrapleural Pneumonolysis. S. Anttila.—p. 274.
*Tuberculous Primary Infection in 3 Children, Occurring in Connection with Fall into Highly Contaminated River Water. V. Gaustad.—p. 281.
Pathogenity and Changeability of Strains of Mycobacterium Tuberculosis. E. Larmola.—p. 292.

Tuberculosis Following Fall Into Contaminated River Water.—Gaustad reports observations on 3 children who accidentally fell into a river which was greatly contaminated with sewage. In 2 of the children erythema nodosum developed, with positive tuberculin reaction and pulmonary changes from four to five weeks after the accident. In the third child a positive reaction to tuberculin and hilar adenitis with pulmonary infiltration were found on examination ten weeks after the accident. There were no clues to any tuberculous source of infection within the children's families or kindergartens. The possibility of infection with tuberculosis on the occasion of the accidental immersion thus remains. The sewage from a sanatorium and from a nursing home for tubercular patients empties into the river about 300 meters upstream from the site of the accident. After inoculation of river water into guinea pigs, tuberculosis developed in several of the animals.

Annales Paediatrici, Basel

170:57-112 (Feb.) 1948. **Partial Index**

*Twenty Years BCG Vaccination in Sweden. A. Wallgren.—p. 57.
Dextrin-Maltose Mixtures in Feeding of Infants. F. Petuely.—p. 96.
Icterus Gravis: Treatment by Exsanguination Transfusion. I. Heyman and B. Z. Werbin.—p. 109.

Twenty Years of Vaccination with BCG in Sweden.—According to Wallgren, vaccination with BCG was introduced in Sweden in 1927. The vaccine is given intradermally. To prevent inoculation of persons already infected with tuberculosis, a negative tuberculin test must be obtained prior to the vaccination. After BCG inoculation the person must be protected against virulent infection for from six to eight weeks. The dose used was 0.05 mg. Until 1947 more than 500,000 persons have been vaccinated in Sweden, and the frequency of the BCG vaccinations is increasing, so that during 1947 probably more than 250,000 persons have been vaccinated. There are no signs that the BCG bacilli have regained their original virulence. The duration of the immunity produced by BCG differs individually but lasts as a rule from five to ten years. It appears to give protection against the immediate results of a virulent primary infection, i. e., against the clinical primary tuberculosis, miliary tuberculosis and tuberculous meningitis, to a certain extent also against pleurisy and pulmonary tuberculosis with cavity formation as far as it is the sequel of primary tuberculosis of the lung. Not much can be expected from BCG vaccination as a prophylactic against late secondary tuberculous infections such as skeletal or renal tuberculosis and ordinary phthisis.

Deutsche medizinische Wochenschrift, Stuttgart

73:33-64 (Jan. 23) 1948. **Partial Index**

Cushing's Syndrome, Thymus Tumor and Landouzy's Tuberculosis. H. Siegmund.—p. 33.
Nutritional Defects from Standpoint of Central Regulation. F. Bertram.—p. 36.
Allergic Cholecystopathy and Secondary Infectious Cholecystitis After Dysentery. W. Stockinger.—p. 42.
*Toxic Reactive Changes in Nuclei of Leukocytes. (Pseudo-Pelger). F. Heckner.—p. 47.
Methylthiouracil in Treatment of Hyperthyroidism. K. Beckmann.—p. 49.
Progress in Chemotherapy of Allergic Disorders. H. Sarre.—p. 50.

Toxic Reactive Changes in Nuclei of Leukocytes (Pseudo-Pelger).—Heckner describes peculiar nuclear changes in leukocytes, which were observed in 6 cases of enteritis or enterocolitis and in 1 case of typhoid. Morphologically the nuclear changes could not be differentiated from Pelger's nuclear anomaly of the leukocytes. However, whereas Pelger's nuclear anomaly is hereditary and permanent, in the cases under consideration the anomaly disappeared simultaneously with the symptoms of the enteritis or typhoid. Studies of the bone marrow and of the blood suggest a toxic cause of the nuclear anomaly. The change is not like an ordinary deviation to the left. Differentiation from true Pelger's nuclear anomaly is possible by watching the course of the disease. The author suggests that in blood pictures with decided deviation to the left, but without leukocytosis, a careful search should be made for the presence of pseudo-Pelger cells.

Helvetica Medica Acta, Basel

15:105-220 (March) 1948. **Partial Index**

*Treatment of Leukemia with Roentgen Radiation, Arsenic and Urethane. S. Moeschlin.—p. 107.
*Transition from Boeck's Disease to Miliary Tuberculosis. Contribution to Problem of "Atypical" Tuberculosis. U. Frey.—p. 129.
Clinical Significance of Bicycle Ergometer Tests for Evaluation of Reduced Capacity for Work, with Remarks on Behavior of Lactic Acid in Blood During and After Work in Various Diseases. B. Jasinski.—p. 152.

Treatment of Leukemia.—Moeschlin states that urethane, arsenic and roentgen irradiation exert only a palliative effect on leukemia. One should try to limit treatment to urethane or arsenic as long as possible because administration of these drugs in therapeutic doses prevents mitosis of the pathologically degenerated cell groups. In contrast to roentgen irradiation it does not affect the erythropoiesis. Roentgen irradiation should be practiced in cases which from the beginning are not amenable to treatment with drugs or in cases which become refractory after prolonged treatment with drugs. Irradiation is a valuable supplement to the treatment with drugs in patients with a very large spleen or with extensive involvement of lymph nodes in spite of improvement of the blood picture. Urethane is the treatment of choice for chronic leukosis because the drug has no toxic effects. Its mode of action is probably that of an elective control of the karyokinesis of the pathologically degenerated leukemic cells and a stimulating effect on the erythropoiesis. Satisfactory results were obtained against chronic myeloid leukemia with continued oral administration of 5 to 15 drops of Fowler's solution (solution of potassium arsenite) three times per day. With this treatment the capacity for work was maintained in a woman for nine years. Urethane was administered by mouth in doses of 3 to 4 Gm. per day. In the majority of cases the decrease in the number of granulocytes began only after ten to fourteen days. In contrast to Paterson, the author used urethane for continued treatment in small daily doses of 0.5 to 2 Gm. to prevent a new increase in the number of immature cells in the blood after the leukocyte values had been restored to normal. Advanced cases seem to be benefited by this treatment. The terminal occurrence of paramyeloblastic leukosis which characterizes the transition of chronic myelocytic leukosis into an acute form cannot be prevented by any of the available methods of treatment. This applies also to the primary paramyeloblastic forms of leukosis in which temporary remissions may be obtained with arsenic and frequent blood transfusions.

Boeck's Disease and Miliary Tuberculosis.—Frey reports the case of a man aged 29 who died from tuberculous meningitis. The family history was negative for tuberculosis. Three and a half years before his death the patient had

headache, respiratory difficulty and irritative cough; he was tired and his capacity for work was reduced. Large lymphomas of the hilus of the lung were demonstrated on roentgenologic examination, but the lungs and the heart were normal. The course of the disease was benign and the patient's general condition was hardly impaired. The patient became seriously ill three and a half years later, and death occurred fourteen days after his admission to the hospital. The necropsy revealed fibrous degenerated granulomas in the lungs, liver, kidneys and spleen which resembled those of Boeck's disease. In addition to these granulomatous foci with definite tendency to fibroid degeneration, typical fresh miliary tubercles were present in the same organs. Definite transition from Boeck's disease to typical miliary tuberculosis with the classic picture of tuberculous leptomeningitis was demonstrated on microscopic examination. In cases reported in the literature as Boeck's disease the entire organism has been affected because of hematogenous dissemination. Some of these cases showed considerable similarity to chronic miliary tuberculosis. The author's case supports the concept of the tuberculous etiology of Boeck's disease. From the pathologic point of view its differentiation from tuberculosis does not seem justified. The term atypical tuberculosis of Boeck's type is suggested. The prognosis of this form of atypical tuberculosis is not always favorable because of the possible change to miliary tuberculosis.

Maandschrift voor Kindergeneeskunde, Leyden

16:33-64 (Feb.) 1948. **Partial Index**

*Connection Between Hepatic and Skeletal Defects. H. de Roever-Bonnet.—p. 33.
Investigation on Congenital Deformities of Extremities in Tyrol. Vera Erismann.—p. 50.
Extensive Subcutaneous Emphysema in Mild Infections of Air Passages. T. K. Gwan.—p. 59.

Connection Between Hepatic and Skeletal Defects.—According to de Roever-Bonnet malformations of the skeleton are met with in different types of hepatic disease. These skeletal disturbances occasionally resemble rickets clinically as well as roentgenologically. Results of animal experiments indicate that the presence of bile is necessary for the absorption of vitamin D in the intestine and that the liver plays an important part in the internal metabolism of vitamin D. It is probable that the liver also exerts a special influence on the metabolism of calcium. In a boy aged 15 who had been well up to the age of 14 cirrhosis of the liver was accompanied by osteoporosis. The second patient had been hospitalized for the first time in 1928, as an infant aged 9 months, with symptoms of hepatomegalia glycogenica. In later years he was repeatedly hospitalized on account of hepatic and osseous lesions. He is now 21 years of age and manifests an osteoporosis that has existed for years. The author concludes that in the presence of chronic parenchymatous disease of the liver attention must be paid to the development of osteoporosis, which requires special treatment.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

92:153-228 (Jan. 17) 1948. **Partial Index**

*Treatment of Erysipeloid with Penicillin. T. A. J. van Doormaal.—p. 165.
Temporal Arteritis. G. F. van Balen and J. de Bruyne.—p. 170.
Epidemic Cerebrospinal Meningitis in the Army. J. W. Baunders and J. van der Veen.—p. 178.
"Blue Baby" with Congenital Stenosis of Pulmonary Artery. I. Boerema.—p. 184.

Penicillin in Treatment of Erysipeloid.—Van Doormaal points out that the disorder which is caused by Erysipelothrix rhusiopathiae appears in human subjects in different clinical forms: a benign form, which usually remains localized, a serious generalized cutaneous disorder and a septicemic form that may or may not be accompanied by cutaneous lesions and which may become complicated by endocarditis. There is an allergic form which may become complicated not only by endocarditis but also by arthritis, meningitis, lymphadenitis, optic neuritis, intracranial abscess and necrosis of bone. Since this generally mild disease may sometimes assume a serious form, penicillin has been used in treatment. The author observed 3 cases in which complete recovery was obtained following administration of a total dose of 500,000 units of penicillin, a dose of 20,000 units being injected every three hours. Treatment with penicillin seems to be superior to serum therapy and does not involve the risks of serum sickness. Although penicillin therapy has the disadvantage that it requires hospitalization, it should be used for the severe and prolonged cases.

92:533-596 (Feb. 21) 1948. **Partial Index**

Hydrogen Ion Exponent (*p*H) of Several Fluids Used in Bandaging. G. J. N. Vleugels Schutter.—p. 541.
*Folic Acid Therapy in Hematologic Practice. G. Houpst.—p. 557.
Influence of War and Season on Tuberculosis of Lymph Nodes in Rotterdam. M. Straub and H. E. Schornagel.—p. 563.

Folic Acid in Hematologic Practice.—The first of the 3 cases presented by Houpst concerns a woman, aged 48, who had achrestic anemia, anemia of the hyperchromic type with free hydrochloric acid in the gastric secretion. Liver extracts were without effect, but the administration of folic acid tablets effected rapid improvement and finally permanent recovery. The second case reviewed is that of a woman, aged 68, in whom granulocytopenia developed following intramuscular injections of sulfapyridine. Treatment with folic acid produced an increase in the leukocytic count, but because the supply of folic acid was short at the time, this increase could not be maintained. The third case was one of essential thrombopenia in a woman aged 50, in whose skin, particularly of the thighs, large blue spots developed spontaneously. In other regions small red spots developed. Examination of the blood revealed thrombopenia. Treatment with folic acid, hydrochloric acid and reduced iron resulted in the disappearance of the bluish spots and in an increase in the thrombocytes. This increase could be maintained with the aid of folic acid, and the clinical symptoms of thrombopenia disappeared.

Nordisk Medicin, Stockholm

37:103-150 (Jan. 16) 1948. **Partial Index**

Isoimmunization in Pregnancy: Review. B. Broman.—p. 103.
*"Etiology of Toxemia of Pregnancy." S. Gagner, R. Grubb and S. Sjöstedt.—p. 105.
Megalocytic Anemia in Infants. G. Edgren and Elsa Segerdahl.—p. 117.
Myelomatosis with Marked Hepatic Changes. T. Frölander-Ulf.—p. 121.
*Papillomas of Renal Pelvis. Kaare Liavaag.—p. 131.
Disappearance of Polymorphonuclear Leukocytes on Stirring: Source of Error in Leukocyte Count. N. Andresen and E. Praetorius.—p. 134.

Etiology of Toxemia of Pregnancy.—Gagner and his associates observed that in 7 of their 22 cases of toxemia of pregnancy, the father belonged to blood group O, in 7 the mother belonged to the father's blood group and in 2 the mother's group was AB. They refute the statement made by Edlén and his associates that if the father belongs to the O group or if the father's and mother's blood groups are homologous or if the mother belongs to the AB group toxemia of pregnancy does not occur (*Nord. med.* **36**:2281, 1947), and they question the suggested desensitization therapy, namely, injection of serum from the father into the mother in presumptive cases of toxemia. The procedure, they say, may cause injury to the fetus and must be considered as contraindicated unless investigation excludes this possibility.

Papilloma of the Renal Pelvis.—Four cases are described. Liavaag says that in the first 2 cases, in which papilloma of the renal pelvis was considered preoperatively on the basis of the roentgenologic examination, hematuria dominated the picture; in the third case, in which secondary infection in the renal pelvis brought the patient to the physician, calcification in the tumor also suggested possible calculus, especially since infection of the urinary tract with stone formation frequently occurs in patients with double renal pelvis. The hematuria may be transient and of brief duration, as in the first case. Diagnosis before operation is often difficult. In the fourth instance, in a patient with a history of papilloma of the renal pelvis treated by nephrectomy without ureterectomy, constant hematuria and increasing anemia developed. A tumor in the bladder was removed by diathermy; microscopic examination showed cancer. Secondary papillomas may follow papilloma in the renal pelvis and often become maligant. Because of tumor spread to the ureter, treatment of papilloma in the renal pelvis should be nephrectomy with extirpation of the ureter, preferably with resection of the adjacent part of the

bladder. Postoperative control should be continued for a longer time. Patients with papilloma of the bladder should be examined roentgenologically, with regard to primary papilloma of the renal pelvis.

37:151-198 (Jan. 23) 1948. **Partial Index**

Surgical Treatment of Otosclerosis: Review. G. Holmgren.—p. 151.
Causes of Hematemesis and Melena. P. Kirketerp.—p. 156.
Disorders of Small Intestine as Cause of Intestinal Hemorrhage. T. Olaussen.—p. 161.
Perforating Ulcer. J. E. Wingren.—p. 163.
Cancer of Colon. N. Paus.—p. 166.
Surgical Risk in and Persisting Symptoms After Gallstones. J. Swedberg.—p. 168.
Stomach Resection for Ulcer. Ruth Ramberg.—p. 172.
Plastic Surgery of Breast. T. Olaussen.—p. 177.
*Medical or Surgical Treatment of Thyrotoxicosis? A. Jervell and O. Kløvstad.—p. 180.
*Osteochondritis Ischiopubica. L. Nitter.—p. 184.
Indirect Blow Percussion in Acute Appendicitis. N. A. Sehested and J. Hein.—p. 188.
Decompression Treatment with Miller-Abbott Tube in Paralytic Ileus. H. Jensen.—p. 189.
Tight Ligamentum Teres Hepatis as Cause of Abdominal Disorders. T. Francis and E. Lykkegaard Nielsen.—p. 190.

Medical or Surgical Treatment of Thyrotoxicosis?—Jervell and Kløvstad state that there were no postoperative deaths and that postoperative reactions were slight in their 109 cases of thyrotoxicosis treated operatively with subtotal strumectomy in 101 and hemistrumectomy in 8. Follow-up of 107 of the patients for from one to eight years showed satisfactory results in 103. Follow-up of from one to eight years of 51 of the 55 patients with thyrotoxicosis who were given continued iodine therapy showed good results in 35. In preoperative treatment methylthiouracil is not superior to iodine, requires a longer time and should be reserved for patients who are hypersensitive to iodine and who do not react satisfactorily to iodine. Methylthiouracil in permanent treatment in 20 patients with thyrotoxicosis gave good results in 11 patients observed up to two years. Severe intoxications occur mainly in the first weeks of methylthiouracil therapy, so that it should be possible by close observation to lessen the risk. The treatment must be continued a long time and calls for constant control. To what extent permanent recovery follows is still an open question. For the present methylthiouracil should be used in cases where the patient's age or special complications increase the operative risk, in recurrence after operation, and in mild cases with doubtful indication for operation. In many of these last iodine also gives good results. Methylthiouracil treatment may gain ground when more is known about the late results of the treatment. Less toxic and more effective derivatives of thiouracil may come into use.

Osteochondritis Ischiopubica.—Nitter reports 5 cases of osteochondritis ischiopubica in children, 1 case of septic, 4 of aseptic type. The entity was first described by van Neck in 1925. In 1941, 54 cases had been published in the literature. With delay or disturbance in ossification in the ischiopubic synchondrosis friction is believed to occur between the ends of the bones, and the resulting hyperemia and neoformation of inferior bone tissue lead to the inflammation characteristic of the disease. Roentgenologically osteoporosis and formation of cysts are seen, with destruction of bone; after weeks or months signs of recalcification and regeneration of bone appear. The so-called aseptic forms generally recede without intervention. In the usual mild cases the patients should be kept as quiet as possible till the symptoms abate. Permanent disability does not result. In children in whom vague pain suggests disease of the hip joint but the roentgen picture is negative, disturbances in ossification in ischiopubic synchondrosis should be considered.

Policlinico, Rome

55:65-96 (Jan. 19) 1948. **Partial Index**

*Experimental Macrocytic Anemia from Oral Administration of Streptomycin, and Restoration of Blood Picture to Normal by Administration of Folic Acid. T. Lucherini and L. Schiavetti.—p. 65.

Anemia Due to Streptomycin Cured with Folic Acid.—Animal experiments carried out by Lucherini and Schiavetti on rats and chickens demonstrated that streptomycin administered orally produces anemia of macrocytic type and granulocytopenia with hypoplasia of bone marrow. It is suggested that this effect of streptomycin is due to its bactericidal action on the intestinal flora. The hematologic picture as well as that of the bone marrow was restored rapidly to normal by the oral or parenteral administration of folic acid. The results of these experiments proved that in rats and chickens the bacterial flora of the intestinal canal plays an important part in the synthesis of folic acid.

Progrès Médical, Paris

76:129-144 (March 24) 1948

*Critical Study of Therapeutic Value of Streptomycin. C. Gernez, J. Minet, P. Nayrac and R. Pierret.—p. 131.

Therapeutic Value of Streptomycin.—Gernez and his co-workers treated 153 patients (70 of whom had tuberculous meningitis, 63 pulmonary tuberculosis, 7 infectious diseases and 13 miscellaneous infections) with streptomycin by intramuscular route. The dose varied from 1 to 3 Gm. per day in adults and from 1 to 1.5 Gm. in children. Satisfactory results were obtained with six as with three fractional doses per twenty-four hours. Rapid improvement resulted in 28 patients with tuberculous meningitis, but so far not 1 case of clinical recovery of more than five months' duration has been observed after the discontinuation of treatment. The prognosis of tuberculous meningitis with disseminated tubercles is less favorable than that of isolated meningitis. The disease is more severe in children than in adolescents and adults. The intramuscular administration of the drug seems to be as effective as the combined intramuscular and intraspinal administration. Permanent recovery was obtained in miliary tuberculosis, but the improvement did not protect the patient against meningeal complications. Streptomycin exerts a favorable effect on pharyngolaryngeal and tracheobronchial tuberculosis, but less regularly on recent ulcerocaseous pulmonary tuberculosis. Streptomycin is ineffective against fibrous tuberculosis of long duration and tuberculous empyema, but it has a decisive effect on cutaneous fistulas. The drug was well tolerated. Not a single strain of organism isolated before or after treatment with streptomycin showed a resistance to this antibiotic which would have been superior to 0.5 microgram in Dubos' liquid medium.

Revista Chilena de Fediatría, Santiago

18:811-896 (Nov.) 1947. **Partial Index**

Administration of Sulfathiazol to Tuberculous Children. A Wiederbold.—p. 811.
*Physiologic Edema of the Newborn. R. Ortega and O. Jimenez.—p. 843.
Acute Anemia of Newborn Caused by Subaponeurotic Cephalohematoma. G. Gil.—p. 855.
*Variations in Treatment of Congenital Luxation of Hip. E. Diaz Bordeu.—p. 871.
Use and Abuse of Treatment with Massive Doses of Vitamin D. C. Ruiz.—p. 877.

Physiologic Edema of the Newborn.—Ortega and Jimenez observed edema of various intensity in 94 per cent of normal newborn infants. Because of this high incidence and the absence of pathologic conditions, the authors regard this edema as physiologic. In order to determine degrees of intensity, and in order to eliminate arbitrary estimates, the authors employed the McClure-Aldrich test for hydrophilia, making three hundred and thirty-eight tests in 60 newborn infants. There was a strict parallelism between the outcome of this test and the hydrophilia time in the first ten days of life; during the first twenty-four hours the average time was 167 seconds; on the ninth day of life it was 700 seconds. The proteinemia in the mother, in the blood of the umbilical cord and in the infants does not show changes to explain this edema. The authors suggest that the edema might be due to circulatory changes.

Congenital Dislocation of the Hip.—Diaz Bordeu calls attention to deformities which develop as the result of prolonged immobilization in patients with congenital disolcation of the hips. These inconveniences can be avoided by a modification of the classic treatment which was employed in 7 cases. The same position is used, with two short boots of molded plaster which are joined together with a stainless steel plate. This permits free movement of the hip, with the advantage of less deformities and better sanitation. The results obtained up to now have been highly satisfactory.

Riforma Medica, Naples

61:93-120 (Feb. 29) 1948. **Partial Index**

*Streptomycin by Tracheal Route in Treatment of Pulmonary Tuberculosis. F. Musotto and G. Paparopoli.—p. 93.

Streptomycin in Pulmonary Tuberculosis.—Streptomycin in one daily dose of 100 mg. was administered with good results to 15 patients with pulmonary tuberculosis. The drug was given by the transglotid route, through a nasal sound. The effects of the 100 mg. dose are as good as those of a much larger dose when the drug is given by the muscular route. The transglotid treatment either reduces or suppresses tubercle bacilli and bacteria in the sputum and greatly improves the general and pulmonary condition of the patient.

Sang, Paris

19:65-128 (No. 2) 1948. **Partial Index**

*New Hereditary Disease of Blood: Hereditary Methemoglobinemic Cyanosis. A. Codounis, G. Loucatos and E. Loutsides.—p. 65.
*New Method for Diagnosis of Hemophilia; Utilization of Venous Blood and Coagulated Capillaries. Comparison of Results Obtained in Hemophilia and in Other Hemorrhagic Syndromes. J. P. Soulier.—p. 78.
Attempt of Elucidation of Mechanism of Action of Nitrogen Mustard, N. M., and New Possibilities of Its Medical Application. J. Aleksandrowicz.—p. 94.
Some Diseases of Blood Treated with Mustard Gas. P. Chevallier, Mrs. Lamotte, S. Brion and Sabouraud.—p. 97.

Hereditary Methemoglobinemic Cyanosis.—Codounis and his co-workers report 14 cases of congenital idiopathic methemoglobinemia in 8 men and 6 women between the ages of 6 and 80 years, combined with familial cyanosis in 8. The 14 patients were all members of one geneologic tree comprising four successive generations, with 1 in the first, 2 in the second, 4 in the third and 7 in the fourth generation. Hereditary methemoglobinemic cyanosis should therefore be considered along with other hereditary diseases of the blood such as hemophilia, congenital hemolytic disease and certain varieties of anemia. This new hereditary disease is bound to the mutation of a chromosome gene, of a disease of genotype, transmitted as a dominant characteristic according to Mendel's law. Hereditary methemoglobinemic cyanosis can be transmitted by men as well as by women without predilection for either sex. The term hereditary methemoglobinemic cyanosis is suggested to replace that of congenital idiopathic cyanosis or familial cyanosis, since this new term comprises the three principal characters of that anomaly of the blood: cyanosis as the dominant clinical symptom, methemoglobinemia as the pathognomonic spectroscopic character of the disease, and its hereditary quality which includes its congenital as well as its familial character. The condition must be differentiated from cyanosis due to drug intoxication or to enterogenous autointoxication which may be combined with methemoglobinemia, but the latter is temporary only and is not hereditary. Reduction of the methemoglobin was obtained in vivo and in vitro with high doses of ascorbic acid administered intravenously or by mouth; the same result was obtained with methylene blue.

New Method for Diagnosis of Hemophilia.—Soulier does not consider prolongation of the coagulation time as a specific guide in diagnosis of hemophilia. A more accurate method suggested by the author consists of measuring the residual prothrombin in the serum after the coagulation of the blood and after immersion in a warm bath for four hours. This measuring was done with blood withdrawn by puncture of a finger, but precise and specific results were obtained with capillary blood alone. The method was applied to 13 patients with hemophilia, 3 of them adults between the ages of 19 and 41 years and 10 of them children between the ages of 7 months and 9 years. Nearly the whole amount of plasma prothrombin was still observed in the serum separated from venous blood as well as in that separated from capillary blood. The serum was brought into contact with standard thromboplastin for one minute, standard citrated fibrinogen was added and the coagulation time was determined; it was always below 8 seconds whether venous or capillary blood was used. Thus the tissue thromboplastin had masked but had not corrected the coagulation defect. Results obtained in normal persons showed that the time was about 20 seconds for a serum separated from venous blood. It varied from 30 to 60 seconds for a serum separated from capillary blood. This shows that a considerable part of the prothrombin of the blood was consumed (82 per cent in capillary blood). The same results as in normal persons were obtained in patients with hypoprothrombinemia, in patients to whom heparin was administered, in patients with purpura not associated with thrombopenia and in patients with pseudohemophilia. In patients with severe thrombopenia the deficient consumption of prothrombin from venous blood was nearly identical with that in persons with hemophilia, while the consumption of prothrombin from capillary blood was corrected at least partially, since the coagulation time was inferior to the normal one, but always above 10 seconds, thus differing from that in hemophilia. This method is an aid to diagnosis of hemophilia in infants.

Strasbourg Médical

108:1-10 (Jan. 5) 1948

Generalities Concerning Penicillin. R. Tulasne.—p. 1.
*Late Results of Treatment of Acute Osteomyelitis in Adolescents with Penicillin. R. Fontaine and A. Grosse—p. 3.

Penicillin in Acute Osteomyelitis.—Fontaine and Grosse treated 12 patients, 7 boys and 5 girls between the ages of 4 and 16 years, with acute osteomyelitis of the long bones, with penicillin. Five hundred thousand to 1,000,000 units of the drug were given in fractional doses every three hours by intramuscular route. Recovery resulted in 5 patients in whom penicillin therapy was started immediately at the onset of the disease. There was no abscess formation, nor were there any bony lesions revealed on roentgenologic examination. Follow-up continued for five to twelve months. An abscess without involvement of bone occurred in 1 case in which treatment was initiated fifteen days after the onset of the disease, but complete resolution was obtained. In 3 cases the general condition of the patients on admission was grave. Penicillin therapy was started within forty-eight hours to five days after the onset of the disease. There was a rapid improvement in the general condition with lowered temperature. Although these patients were saved, a chronic course with abscess and sequestrums could not be prevented. In the last 3 patients, penicillin therapy was commenced at the onset of the disease and apparently a complete resolution occurred; no bony lesions were revealed on roentgenologic examination. Within three weeks to two months abscesses, extensive lesions of chronic osteomyelitis type and periosteal hyperostosis occurred in the absence of general symptoms, with few local signs and with fatal septicemia in 1. Penicillin is not the treatment of choice in acute osteomyelitis; it may save the life of a patient with severe disease, and it may increase the incidence of recoveries in mild disease, but it does not prevent the severe types of bone suppuration.

Wiener medizinische Wochenschrift, Vienna

98:89-112 (March 6) 1948. **Partial Index**

Question of Advisability of Resection in Doubtful Cases of Ulcer. P. Huber.—p. 89.
Development of Surgical Treatment of Pulmonary Tuberculosis. F. Spath.—p. 91.
Spontaneous Subcutaneous Rupture of Rectus and of Obliquus Externus Abdominis Muscles. Sinani.—p. 93.
*New Test for Effective Vagotomy in Ulcer Disease. F. Mandl and H. Männchen.—p. 97.

Vagotomy for Ulcer.—Mandl and Männchen performed subdiaphragmatic vagotomy on 35 patients with ulcer of the stomach, duodenum or jejunum during the period October 1947 to February 1948. Hess and Faltitschek demonstrated in 1924 that total acidity as well as free hydrochloric acid were increased in patients in whom blockade of the sympathetic nerve was carried out by administration of procaine hydrochloride. A preponderance of the vagus resulting from the elimination of the sympathetic nerve was regarded responsible for this increase in the secretion of acid and in the motility of the stomach. Blockade of the sympathetic nerve was performed on 21 of the 35 vagotomized patients. Results showed that there was still further increase in the acid values of 3 patients in whom not all of the vagus fibers which pass to the stomach have been interrupted. There was no change of the acid values in the remaining 18 patients in whom all the vagus fibers on the right and on the left side had been interrupted. The absence of an increase in acid values after blockade of the sympathetic nerve in vagotomized patients is a useful test of completeness of the vagotomy from the anatomic point of view.

Book Notices

A Primer of Cardiology. By George E. Burch, M.D., F.A.C.P., Associate Professor of Medicine, Tulane University School of Medicine, New Orleans, and Paul Reaser, M.D., Instructor in Medicine, Tulane University, School of Medicine. Fabrikoid. Price, $4.50. Pp. 272, with 203 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1947.

These authors have attempted to perform the difficult task of writing a work on cardiology in less than three hundred pages. Considering the handicap that confronted them they have done well. They have presented some general anatomic considerations of the cardiovascular system. This is followed by a section dealing with the approach to the diagnosis of heart disease. The common types of heart disease are discussed, including the management and treatment of each variety. The final section of the book deals with the bedside diagnosis of the cardiac arrhythmias. Electrocardiography is disregarded. The authors refer the reader to monographs on this subject, apparently believing that this has no place in a primer. At the same time they refer to certain types of heart disease, for example infectious myocarditis, in which the diagnosis may be made only with the electrocardiograph.

In the section on physical signs of heart disease they dwell little on inspection, palpation and percussion. Auscultation, however, receives an undeserved amount of attention. Indeed, there is a discussion of the physical qualities of sound itself that adds little to the value of the book. There is a complicated equation having to do with sound which will mean little to the medical student, less to the student of elementary cardiology and nothing at all to the practicing cardiologist.

The authors state that the fourth heart sound, produced by auricular systole, is "not frequently heard on auscultation." It would be more correct to say that it is almost never heard on auscultation.

The authors' definition of a functional murmur is a bit confusing. It is usual to think of a functional murmur as one which occurs in the absence of structural alteration in the cardiovascular system. Yet the authors speak of the functional murmur due to the dilatation of the aortic or mitral ring. Surely the dilatation of the aortic ring is a structural change—a reversible one to be sure, but none the less structural.

The authors classify neurocirculatory asthenia as a cardiac dysfunction produced by a psychoneurosis. This may be true but will not be accepted without argument in some quarters, and it seems a bit inconsistent to suggest that the removal of foci of infection is good treatment for psychoneuroses.

The section on the management of congestive heart failure is obviously designed for the extremely severe cases. It is not wise to suggest that a diet containing less than 2 Gm. of sodium per day is necessary for the treatment of all cases of congestive failure. Such a diet is extremely unpalatable and, something that the authors fail to mention, is likely to cause vitamin deficiency. Such diets are usually reserved for the more extreme cases.

The section on the bedside diagnosis of cardiac arrhythmias is refreshing. It is usually assumed that the electrocardiograph is necessary for such diagnosis. The student seems to have lost interest in attempting to make such a diagnosis without the help of some precision instrument. Here the authors point out that it is quite possible to differentiate the arrhythmias in many instances without any instrumental help. However, their enthusiasm occasionally leads them astray. For example, it is seldom possible to differentiate, clinically, between the premature auricular contraction and the premature ventricular contraction. It is true that the pause following the premature ventricular contraction is usually longer than that following the premature auricular contraction, but the difference is a matter of hundredths of a second and one's fingers, ears or mind is not sufficiently acute to recognize this difference.

Also, the authors have totally disregarded the fact that the premature auricular contraction may under certain circumstances be followed by a complete compensatory pause. Indeed, one would conclude from the text that such a pause never occurred. In fact, it seldom occurs but it may and does occur rarely.

These examples of inaccuracies are more than likely due to the effort to save space. They probably represent the penalty that is paid for trying to crowd the subject into a limited number of pages. All in all the authors have turned in a good job on an extremely difficult assignment.

The Green World of the Naturalists: A Treasury of Five Centuries of Natural History in South America. Selected and Annotated with Biographical Sketches and Introduction by Victor Wolfgang von Hagen. Cloth. Price, $5. Pp. 392. Greenberg, Publisher, 201 E. 57th St., New York 22, 1948.

This book is a collection of some of the most representative writings of twenty-five naturalists who studied and wrote of South America. Five centuries of the natural history of the "Green Continent" are unfolded in the words of Humboldt, Darwin, Bates, Tomlinson, Hudson, Beebe and Sanderson, to mention only a few of the illustrious adventurers chosen by Mr. von Hagen.

The author introduces the contribution of each with a biographic sketch of the men whose lives and work extended over a period from the beginning of the sixteenth century to the present time. The wonders of the "Green World" are fully described, together with the stories of the men who faced hardship and peril to write of them.

Tales of these hardy naturalist-explorers who pushed aside South America's frontiers, explored its dark brooding rivers, climbed the lofty Andes and struggled across scorching deserts and through dense jungles cannot fail to hold the reader's interest. How they substituted fact for fable, investigated the continent's natural phenomena, rediscovered rubber, painstakingly studied the plants and animals, measured the tides and charted the earth's surface makes a fascinating story of the penetration of the "Green Curtain" by a series of knowledge-hungry men down through the years.

The reader can live for a brief time with the fabulous people who existed behind the "Green Curtain" of the New World. He can see, through the eyes of the men who first saw it, and marvel at the strange plant and animal life that abounded there. For pleasant diversion, for an excursion into humid forests, along the broad Amazon, up into the coolness of the Andes and down again to torrid, treeless plains, this book is highly recommended.

Psychiatry for the Pediatrician. By Hale F. Shirley, M.D., Associate Professor of Pediatrics and Psychiatry, Executive Director of the Child Psychiatry Unit, Stanford University School of Medicine, San Francisco. Cloth. Price, $4.50. Pp. 442. The Commonwealth Fund, 41 E. 57th St., New York 22: Oxford University Press, Amen House, Warwick Sq., London, E. C. 4, 1948.

This book is the product of the author's experience in the study and treatment of patients brought to the Stanford University Pediatric Psychiatric Unit and of his efforts as a teacher of medical students and resident pediatric staff members to make a basic training in child psychiatry a useful part of their training for pediatric and general practice. "It is intended to be an introduction to the subject; a primer as it were."

The author has succeeded well in his announced intention to keep his language simple but has not succeeded quite so well in observing another of his objectives, brevity. For example, under basic concepts in child guidance he has a discussion of enuresis that is repeated under development and habit training. In both of these, he repeats all the timeworn and largely discarded medical treatments for enuresis, even including Kragnogorski's inhuman and ineffective method of giving 5 Gm. of salt at bedtime. At the same time, he advances the psychogenic factors in the cause and treatment of enuresis in such an uncertain and roundabout fashion that one gets the idea that he has little faith in it as an effective method of treatment or as a principal cause. The general lack of specific instructions and dogmatic conclusion in that part of the book which deals with known physical disease is perhaps a natural result of the author's greater experience and self confidence when he writes of those problems which are preponderately in the psychic rather than in the somatic area of his field.

The foregoing criticism is more than balanced by the fact that the book covers nearly, if not all, of the psychiatric problems of children as they present themselves in practice. These problems

and the role of the physician in their solution are so well presented that this book will be of great value to every practicing physician.

If the physician lacks experience, it will give him a sound, basic working knowledge of child psychiatry. If he has much knowledge and experience in this field, he will be encouraged to continue his work with renewed confidence and effectiveness by the author's clear and convincing statements of the fundamental nature of the child's needs as he strives to become a reasonable adult. For example: 1. "A large proportion of the behavior problems with which physicians have to deal can be understood in terms of growth." 2. "That just as food, shelter and protection against injury and disease are necessary for physical health and growth, so a favorable cultural environment is indispensable for the development of a well-balanced and socially adequate personality." 3. "It is too early to tell how much of the present reported findings, conclusions and opinions in regard to the phychiatric aspects of certain physical disease will prove to be well founded."

This book should be in every pediatric library for direct reference and for its excellent bibliography.

Phtisiologie infantile. Par Pierre Lowys, médecin-directeur du Sanatorium Le Roc des Fiz. Préface du Professeur R. Debré. Paper. Price, 2120 francs. Pp. 716, with 220 illustrations. Éditions médicales Flammarion, 22 Rue de Vaugirard, Paris 6e, 1947.

This well prepared French volume is compiled on the basis of the author's extensive personal experiences, as well as those of his teachers, colleagues and predecessors. It comprises seven major parts under the titles Generalities, the Clinic, Diagnosis, Medical Treatment, Pneumothorax and Collapse Therapies, Surgical Treatment, and Hygiene and Prophylaxis. A chapter is devoted to the Ranke evolution of tuberculosis in three stages, and the importance of exogenous and hereditary infection and contagion from man and animal are considered in greater detail. Resistance—racial, age, sex, as well as traumatic and operational—is reviewed. The principal forms seen in the clinic are presented, and the evolution and prognosis given due consideration. Under diagnosis, examination, tuberculin reactions, bacteriologic examination of the sputum, the blood, etc., are reviewed as well as roentgenologic and roentgenoscopic technics and findings. In differential diagnosis, the various types and confusions are elucidated. Air, rest, food, intellectual and biologic and chemical therapies are presented, including symptomatic remedies. The methods and complications of collapse therapy are detailed from all aspects, and surgical measures applied to treatment are well presented. Under hygiene and prophylaxis are included disinfection, general hygiene, B.C.G. and the place of tuberculosis prophylaxis with consideration of the preventorium and sanatorium.

This excellent volume on infantile pulmonary tuberculosis is a well printed and sufficiently illustrated general text by a capable author, with adequate general information on tuberculosis included to make it clear. It is intended for students and those who wish to brush up on the subject covered.

Anatomie radiologique normale: Optique radiologique et dépistage des erreurs de lecture des clichés. Par Henry Tillier, électro-radiologiste des hôpitaux d'Alger, Alger. Paper. Price, 600 francs. Pp. 233, with 350 illustrations. G. Doin & Cie, 8 Place de l'Odéon, Paris 6e, 1947.

This book is not intended to be an all-inclusive atlas. It does not attempt to give the detailed technics for taking roentgenograms for various parts of the body. The illustrations are nearly all line drawings which do portray clearly the contours of normal bones. The authors emphasize particularly that different degrees of rotation of an extremity or a part of an extremity may produce marked differences in the shadows cast by the bones which are being studied.

Although the greater part of the text is concerned with the bones and joints, roentgenologic anatomy of the gastrointestinal and thoracic organs is also included.

It is well to remember—and this text definitely emphasizes the fact—that in order to interpret the abnormal the physician must first be thoroughly familiar with the normal roentgenologic anatomy.

Organic Form and Related Biological Problems. By S. J. Holmes. Cloth. Price, $5. Pp. 169, with 1 illustration. University of California Press, Berkeley 4, California; Cambridge University Press, Bentley House, 200 Euston Road, London, N. W. 1, 1948.

Among the most evasive of solution among biologic problems are problems of how plants and animals attain and maintain their form and organization. In the small book which is being reviewed, S. J. Holmes, who was among the earlier biologists who labored with these problems, has developed historically many of the proposed hypotheses together with their defending or opposing arguments. He has also attempted to add to the story such recent biologic information as may contribute to the solution of the problem.

In the first chapter, entitled "The Problem of Organic Form," the author has presented in a general way the questions which are to be answered. Starting with the points of view of Pflüger and Roux, he continues with those of Child, Driesch, McDougall, Cannon and others. Fortunately he directs his discussion away from teleologies and entelechies.

In the following twelve chapters the author deals with specific fields of investigation which have contributed to our understanding of development. The first of these is entitled "Building Through Functioning." In this chapter he discusses the contributions of causal explanations of homeostasis and other physiologic phenomena to our understanding of the development and maintenance of organic form. In the next chapter, on "Competition as an Integrative Factor," he develops R[illegible]x's conception of the struggle of the parts in development. Chapter V deals with "Chemical Equilibrium and Organic Integration." Here the author attempts to show how equilibrium, at first a problem of a single cell, becomes a problem of increasing complexity as development proceeds. Chapter IX concerns the contribution of a knowledge of cancer to our understanding of development. Chapter X is called "Genes versus Gradients." Here the author concludes: "there is little to justify the conclusion that gene activities are directed by gradients and much evidence for the reverse relation." The final chapter, as may have been suspected, deals with the subject of "Recapitulation and Its Supposed Causes." The chapter is primarily a historical treatment, but some attempt is made to add a new genetic point of view.

To those who have not followed the historical development of the many hypotheses which have been advanced as explanations of various aspects of development, the book may be highly recommended. It outlines in a clear style the concepts of many investigators and it attempts to integrate them. The book may be recommended particularly to the physician who sees the value of a broad understanding of what a human body is and how it came or comes into being and how it is maintained.

Les embolies de l'artère pulmonaire et des artères des membres: Physiologie pathologique et traitment. Par René Leriche, professeur au Collège de France. Paper. Price, 150 francs. Pp. 127, with 5 illustrations. Masson & Cie, 120 Boulevard Saint-Germain, Paris 6e, 1947.

The output of French medical literature reaching us since the end of the war is considerable. Perhaps the authors were using their literary efforts as an escape against the horrors and misery which they witnessed during the German occupation. Certainly they were shut off from any outside source of information, which, in the case of original thinkers, may be more help than hindrance. Nobody could accuse Professor Leriche, who has just published his fourth volume of lectures on arterial diseases delivered at the Collège de France, of not having any original ideas. The present monograph deals with emboli, both pulmonary and peripheral arterial, and his conceptions summarized in this volume are the basis on which vascular surgery is practiced in this country today. It has been often said that some of the author's conceptions were devoid of experimental proof or lacked clinical confirmation. There is nothing, however, in this small monograph which had not been confirmed in time by adequate clinical studies, mostly from this country. Vascular surgery owes an everlasting debt to Leriche, who by sheer intuition and in spite of meager facilities has advanced the functional point of view in the treatment of acute vascular occlusions. This monograph is a brief summary of his twenty year old labors in this field.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

POLLEN EXTRACTS

To the Editor:—**When pollen extracts have been prepared (ragweed, timothy, etc.) and sent through the mails in midsummer, should they be administered when the pressure of gas in the vial is such that it blows the piston out of the syringe?**

Virginia M. Palmer, M.D., White Plains, N. Y.

ANSWER.—Any injectable solution packaged in cold weather and hermetically sealed will develop considerable pressure when the package is kept at a high temperature. This pressure should cause no concern. It is unlikely that any pollen extract would develop pressure through fermentation by living bacteria or yeasts and not show some visible turbidity. If fermentation was present, the extract would probably show considerable bubbling and foaming after the excess pressure had been released. The nature of the menstruum and preservative would give one some idea of any possible cause for decomposition. The question is best referred to the manufacturer of the extract.

POLIOMYELITIS

To the Editor:—**During the summer of 1947 several patients had illnesses which could have been anterior poliomyelitis. The symptoms are mild, spinal fluid examinations were not diagnostic and residual paralysis was absent or minimal. We are, naturally, still anxious to make an accurate diagnosis in these cases and in similar cases in the future. Is it possible to make an accurate diagnosis following convalescence by titrating antibodies in the patients' serum? What laboratories do this work and what is the procedure for and cost of obtaining material?**

M.D., Texas.

ANSWER.—During the summer of 1947, there were many thousands of such cases throughout most of the United States and Canada. Comprehensive laboratory and clinical studies of approximately 100 such patients indicated a diagnosis of anterior poliomyelitis, not only because the signs and symptoms were compatible with this disease but because (1) the virus of poliomyelitis could be recovered from the stools of many such patients, (2) characteristic changes in the spinal fluid were usually noted either during the acute stage or within three weeks of onset, and (3) attempts to isolate other viruses were unsuccessful. An attempt to confirm a diagnosis of poliomyelitis following convalescence by quantitating the virus-neutralizing capacity of acute and convalescent serums is not justified. The unreliability of this method may be explained by the fact that clinical poliomyelitis can be induced by several different immunologic types of the virus.

STATIC ELECTRICITY

To the Editor:—**What is the explanation for the occurrence of static electricity in some persons and not in others? What measures can be employed to eliminate this phenomenon, especially with reference to light switches, bedding and door knobs?** **M.D., District of Columbia.**

ANSWER.—Inherently there is no known physical reason for some persons to show static electric phenomena more than others. Factors such as moisture of skin, type of clothing (silk versus cotton), footwear, conductivity of soles of shoes and atmospheric conditions of humidity may make static effects more noticeable in different persons and indeed in the same person at different times. There are great differences in individual psychic reaction with respect to sensory electric shocks. Some persons seem to be "hurt" more by static sparks than others—furthermore, many persons are apprehensive about anything obviously electrical.

Static phenomena are always induced on relatively nonconducting objects. Good electrical conductivity instantly grounds any charges frictionally produced. The production of charge itself depends on the types of material rubbed together. One therefore expects static phenomena more from silk-leather, wool-wax or rubber, and rubber-concrete combinations. To avoid completely such effects, metallic contacts to ground or their equivalent should be provided. Parking lots have a flexible metal spring that brushes the automobile axles and carries static accumulations to the ground where drivers have to reach out and contact ticket collectors. Chains dragging below oil trucks accomplish the same purpose. The minute static accumulations that persons accumulate from scuffing carpets, removing silk garments, changing bedding or making up beds are absolutely harmless and trivial. Not so are possible contacts with light switches whose metal frames may not be properly grounded and hence may be at the power-line voltage above ground. A person touching such a faulty device, if he be well grounded himself as with damp shoes on a damp floor, or in water in a tub, may get the full voltage across a long bridge through his body with enough current flow to cause cardiac fibrillation or even worse. This, of course, has nothing to do with static.

HYPOSPRAY

To the Editor:—**Please furnish information on the punctureless hypodermic needle and syringe. Has it proved practical and is it in general use? Is the "needle" an integral part of the syringe or can regular syringes be used with it? Who makes it?** **M.D., Ohio.**

ANSWER.—The device to which this inquiry refers is probably "hypospray," which has recently received considerable publicity. This device operates on the principle that a stream of fluid ejected with high velocity through an extremely small opening can penetrate solid objects with considerable facility. This device consists of a metal tube surrounding a plunger which is pushed by means of a highly tempered spring against the fluid medicament contained in a metal cartridge. The fluid is rapidly forced through an opening of 75 to 80 microns in diameter located at one end of the metal tube. The end of the tube in which this opening is located is held against the skin, the trigger holding the spring is released, and the fluid in the cartridge penetrates the skin without pain and usually without leaving a readily visible mark.

The depth to which fluid can be injected by this device depends on the spring tension, the thickness of the skin and the viscosity of the fluid. The makers claim that it is impossible to give an accidental intravenous injection with this device. The device is still in the experimental stage and has not been marketed. Numerous investigations to determine its usefulness and limitations are under way, and until the results of these investigations become available, the use of "hypospray" cannot be recommended. The rights to "hypospray" are held by R. P. Scherer of Detroit.

MYASTHENIA GRAVIS

To the Editor:—**A woman aged 34 has had myasthenia gravis for eight years, requiring neostigmine methylsulfate ampules daily. She is now seven months gravid and reports she has required no neostigmine for six weeks. Please advise regarding postpartum management. I anticipate that she will have some sort of severe withdrawal symptoms.**

Lester J. Olson, M.D., Spooner, Wis.

ANSWER.—Many patients with myasthenia gravis who become pregnant have a partial or complete remission from the symptoms of myasthenia during the second or third trimester of pregnancy. The reason for this is unknown. Presumably the imbalance of the acetylcholine-cholinesterase reaction at the myoneural junction is affected by the pregnancy, possibly by some hormone elaborated by the placenta. All attempts to explain this restoration of function have resulted so far in failure. Extracts of the placenta have not favorably affected patients with myasthenia gravis, nor have endocrine preparations used in sufficient amounts to establish their effectiveness in producing bodily changes. Moreover, transfusion of whole blood from a woman seven months pregnant did not change the symptoms of a patient with myasthenia gravis.

Delivery of patients with myasthenia gravis who are in remission has been surprisingly normal, and in most cases there have been no withdrawal symptoms. Indeed the symptoms of myasthenia may not appear for two or three months after delivery, and then their appearance is gradual and not explosive. If symptoms of myasthenia develop within a few hours or days after delivery, these can always be controlled by intramuscular use of neostigmine methylsulfate. Ampules of 0.5 mg. of the drug should be injected one or two at a time, and they may be repeated at appropriate intervals until the symptoms of patient are under control. Subsequently, if the symptoms of myasthenia have reappeared, the patient should return to the taking of neostigmine bromide by mouth, a more satisfactory form of medication over long periods of time than injections given four times a day. One tablet of neostigmine bromide by mouth is roughly equivalent to 0.5 mg. of neostigmine methylsulfate by intramuscular injection.

POLLEN ALLERGY

To the Editor:—My wife, son and daughter have hay fever, and the daughter has asthma during the ragweed season. I have considered air-conditioning some of the home for their protection during the autumn months, but have not found an ideal arrangement. Please give information in this regard and state whether complete relief is obtainable from this type of procedure.

V. J. Horton, M.D., Calmar, Iowa.

ANSWER.—Air conditioning for relief of hay fever and pollen asthma may be merely a procedure of filtration to remove pollen grains or filtration and cooling for comfort. The commonest filtering machines are those that use "celotex" filters. Another uses the principle of electrical charge on particles. It filters by attracting charged grains of pollen to plates which have an opposite charge and which are coated with oil to which the grains of pollen adhere. These machines are designed for the average-sized sleeping room. The purpose is to deliver filtered air under slight positive pressure into the room so that there will not be any back leakage of unfiltered air into the room.

A number of manufacturers make air cooling apparatus which filter as well as cool the air.

The results that may be obtained from air filtration, with or without cooling, are unfortunately disappointing. As pointed out by some of the early workers in this field (B. Z. Rappaport, Tell Nelson and W. H. Welker, THE JOURNAL, May 28, 1932, p. 1961; Tell Nelson, B. Z. Rappaport and W. H. Welker, *ibid*, May 6, 1933, p. 1385) patients with hay fever obtain a variable degree of relief while in the air-filtered room. The symptoms, even if completely relieved, recur in fifteen to forty-five minutes after the patient leaves the room. Severe hay fever is not readily relieved unless the patient remains in the room for hours. The symptoms of asthma require residence in an air-filtered room for twenty-four hours to several days before relief is obtained. Asthma will recur if the patient is exposed to pollen for a short period (about one hour in the average case). Therefore, unless it is possible for the patient to remain in an air-filtered room constantly, filtration alone is not usually sufficient to afford relief, especially in asthma. Patients who respond to treatment by hyposensitization so that the residual symptoms are mild are made more comfortable if the sleeping quarters are free of pollen.

VENEREAL WARTS

To the Editor:—A woman aged 28 has "venereal warts," which are spreading rapidly despite treatment. I find nothing on this subject in the index of The Journal for the past year. I shall appreciate an outline of the most efficient treatment for this condition. The patient is otherwise in good physical condition, condition of the blood is normal, urinalysis is negative, smears from vagina and urethra are negative, and she has no history of infection.

M.D., Utah.

ANSWER.—An effective method of removing venereal warts is to apply to them a solution of podophyllin, 25 per cent, in either 90 per cent alcohol or compound tincture of benzoin. Each wart or cluster of warts should be painted with the solution at intervals of five days or one week. Two or three such treatments usually are sufficient to eradicate most venereal warts.

One must avoid irritation of the surrounding normal skin by the escharotic agent. The patient should remain in the office until the medicine has dried, and then a protective coat of talcum should be applied to the warts and adjacent area before the patient moves about.

If the warts are situated in an area that it not easily accessible, it is sometimes necessary to anesthetize the patient and then destroy the warts by means of electrosurgery.

PSORIASIS

To the Editor:—What, if anything, can be done in the treatment and cure of psoriasis involving the palms and soles? Is psoriasis communicable?

M.D., New York.

ANSWER.—The treatment depends on the types of lesions, for psoriasis of the palms and soles occurs in several forms: sharply localized papules and patches similar to psoriasis on the elbows; bright red, diffuse areas involving the entire surface of each palm and sole; superficial erythematous areas or much thickened patches, perhaps with deep fissures, or the so-called pustular psoriasis. The nosologic position of the latter (pustular) type is still debatable, for some dermatologists consider it to be not psoriasis but a recalcitrant eruption due often to a focus of infection elsewhere in the body.

The treatment of psoriasis of the palms is similar to that for psoriasis elsewhere—with ointments, sometimes roentgen therapy or ultraviolet light and diet. Ointments containing salicylic acid 2 to 5 per cent and ammoniated mercury 3 to 10 per cent, tar preparations 3 to 5 per cent or anthralin 0.1 to 0.25 per cent are most favored. Weaker concentrations are used for superficial patches, the stronger concentrations for deep-seated and thickened lesions. The pustular type is the most resistant to treatment. In this type it is sometimes well to macerate the areas first with cool wet packs of solutions of aluminum subacetate 0.5 per cent, boric acid or potassium permanganate 1:3,000.

Roentgen therapy, if the dosage is kept within safe limits, is often effective for all types of psoriasis. However, psoriasis is likely to recur, and if roentgen therapy is instituted for each attack there is some danger of permanent injury to the tissues from the cumulative effect of the roentgen rays. In addition, a diet low in fats benefits some patients with psoriasis. It is well also to eliminate all foci of infection. Psoriasis is not contagious or communicable.

PENICILLIN ENHANCEMENT FACTOR

To the Editor:—There is some discussion regarding therapeutic effectiveness of penicillin G (crystalline) as compared to that of amorphous penicillin. A recent article in a pharmacy journal (Flack, H. L.: Status of Penicillin and Penicillin Dosage Forms, *Am. Profess. Pharmacist* 13:830 [Sept.] 1947) emphasizes some of these differences. The conclusion is that although crystalline penicillin G is more convenient to use, in that the solutions do not require refrigeration, nevertheless such purified products are lacking in the X or "Enhancement Factor," which apparently potentiates the action of penicillin in certain infections. As Flack indicates, most penicillin presently employed is crystalline G. If his conclusions are accurate, there are many infections which should be treated with amorphous penicillin rather than with the crystalline form. I would appreciate an analysis of this problem.

Robert G. Lehman, M.D., San Pedro, Calif.

ANSWER.—The so-called "enhancement factor" in amorphous penicillin was first described by Welch and his associates of the Food and Drug Administration, although details of their work have not yet been published. Confirmation of this work has been published by Hobby and her co-workers (Hobby, G. L.; Lenert, T. F., and Hyman, B.: *J. Bacteriol.* **54**:305, 1947). The enhancement factor has not been identified and does not appear to be antibacterial when used alone. Administered with penicillin, it increases the apparent potency of penicillin against experimentally induced infections up to as much as five times, depending on the infecting organism. It has been found that not all lots of amorphous penicillin contain the enhancement factor, and, in fact, there may be a number of dissimilar substances which possess this property. Adequate clinical data on the use of the enhancement factor have not been published, and it is not possible to predict the practical importance of this discovery. The division of penicillin control and immunology of the Food and Drug Administration has stated informally that they will certify lots of penicillin claiming therapeutic benefit due to the presence of the enhancement factor only if the factor is demonstrably present in effective amounts. It is not believed that any such lots of penicillin have been certified as yet.

CONDUCTION DEAFNESS

To the Editor:—I recently saw a patient with bilateral conduction deafness who on squatting with his head low, or bending at the waist, for a minute to a minute and a half would regain hearing enough to detect a soft whisper. Ear drums appear normal and voluntary insufflation of auditory tubes produces no change in hearing. I can find no explanation for this. Is it possible that there is a poor contact between the plate of the stapes and the Fenestra cochleae and that when he raises his intracranial pressure he also raises the intracochlear pressure and makes a better contact?

R. J. Antes, M.D., Phoenix, Ariz.

ANSWER.—The accumulation of noninflammatory serum in the middle ear spaces may result in the symptom described—the change in position being sufficient to move the fluid away from the oval and round windows, permitting the normal conduction of sound. The ear drums may appear normal unless magnification is used, in which case a fluid level may be visible or bubbles may be seen after inflation of the tube. Paracentesis of the tympanic membrane followed by inflation to blow out the fluid should result in improvement of the impaired hearing, provided there is no chronic obstruction of the eustachian tube from hypertrophied lymphoid tissue or an associated nasal allergy.

PROPYLTHIOURACIL

To the Editor:—If there is swelling of the thyroid during administration of propylthiouracil is it an indication for reduction of the dose or can it be disregarded?

C. F. Noe, M.D., Amana, Iowa.

ANSWER.—The thyroid gland frequently becomes a little larger and usually becomes harder during the administration of propylthiouracil. These changes in the gland may be disregarded and are not indications for reducing the dose.

JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, MAY—AUGUST 1948

Titles have been listed or abstracts made of important articles in the following journals in the Current Literature Department of THE JOURNAL during the past four months. Any of the journals, except those starred, will be lent by THE JOURNAL to subscribers in continental United States and Canada and to members of the American Medical Association for a period not exceeding three days. Three journals may be borrowed at a time. No journals are available prior to 1937. Requests for periodicals should be addressed to the Library of the American Medical Association and should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Thus most of these journals are accessible to the general practitioner.

Acta chirurgica Scandinavica. Stockholm.
Acta dermato-venereologica. Stockholm.
Acta medica orientalia. Jerusalem.
Acta medica scandinavica. Stockholm.
Acta ophthalmologica. Copenhagen.
Acta radiologica. Stockholm.
Acta Tuberculosea scandinavica. Copenhagen.
American Heart Journal. St. Louis.
American Journal of Clinical Pathology. Baltimore.
American Journal of Digestive Diseases. Fort Wayne, Ind.
*American Journal of Diseases of Children. A. M. A., Chicago.
American Journal of Hygiene. Baltimore.
American Journal of the Medical Sciences. Philadelphia.
American Journal of Medicine. New York.
American Journal of Obstetrics and Gynecology. St. Louis.
American Journal of Ophthalmology. Cincinnati.
American Journal of Pathology. Ann Arbor, Mich.
American Journal of Physiology. Baltimore.
American Journal of Public Health. New York.
American Journal of Roentgenol. and Radium Therapy. Springfield, Ill.
American Journal of Surgery. New York.
American Journal of Syphilis, Gonor. and Venereal Diseases. St. Louis.
American Journal of Tropical Medicine. Baltimore.
American Practitioner. Philadelphia.
American Review of Tuberculosis. New York.
Anesthesiology. New York.
Annales pædiatrici. Basel.
Annals of Allergy. Minneapolis.
Annals of Internal Medicine. Lancaster, Pa.
Annals of the Rheumatic Diseases. London.
Annals of Surgery. Philadelphia.
Annals of Tropical Medicine. Liverpool.
Annals of Western Medicine and Surgery. Los Angeles.
Archiv für Dermatologie und Syphilis. Heidelberg.
Archives of Disease in Childhood. London.
*Archives of Internal Medicine. A. M. A., Chicago.
*Archives of Neurology and Psychiatry. A. M. A., Chicago.
*Archives of Ophthalmology. A. M. A., Chicago.
*Archives of Otolaryngology. A. M. A., Chicago.
*Archives of Pathology. A. M. A., Chicago.
Archives of Physical Medicine. Chicago.
*Archives of Surgery. A. M. A., Chicago.
Archivos argentinos de pediatría. Buenos Aires.
Archivos del Instituto de cardiología de México. Mexico, D. F.
Archivos de pediatría del Uruguay. Montevideo.
Arizona Medicine. Phoenix.
Australian and New Zealand Journal of Surgery. Sydney.
Blood. New York.
Brain. London.
British Heart Journal. London.
British Journal of Dermatology and Syphilis. London.
British Journal of Experimental Pathology. London.
British Journal of Industrial Medicine. London.
British Journal of Ophthalmology. London.
British Journal of Radiology. London.
British Journal of Surgery. Bristol.
British Journal of Tuberculosis. London.
British Journal of Urology. London.
British Medical Journal. London.
Bulletin of the Johns Hopkins Hospital. Baltimore.
Bulletin of the New York Academy of Medicine. New York.
Bulletin of the U. S. Army Medical Department. Washington, D. C.
California Medicine. San Francisco.
Canadian Medical Association Journal. Montreal.
Cancer Research. Baltimore.
Cardiologia. Basel.
Chirurg. Würzburg.
Cincinnati Journal of Medicine. Cincinnati.
Connecticut State Medical Journal. Hartford.
Delaware State Medical Journal. Wilmington.
Dermatologica. Basel.
Deutsche medizinische Wochenschrift. Stuttgart.
Diseases of Chest. Chicago.
Diseases of Nervous System. Chicago
Edinburgh Medical Journal. Edinburgh.
Endocrinology. Springfield, Ill.
Experimental Medicine and Surgery. Brooklyn.
Gastroenterologia. Basel.
Gastroenterology. Baltimore.
Geriatrics. Minneapolis.

*Cannot be lent.

Glasgow Medical Journal. Glasgow.
Gynaecologia. Basel.
Harefuah. Jerusalem-Tel Aviv.
Hawaii Medical Journal. Honolulu.
Helvetica medica acta. Basel.
Illinois Medical Journal. Chicago.
Indian Medical Gazette. Calcutta.
Industrial Medicine. Chicago.
Journal of Allergy. St. Louis.
Journal of the Arkansas Medical Society. Fort Smith.
Journal of Aviation Medicine. St. Paul.
Journal of Bacteriology. Baltimore.
Journal of Bone and Joint Surgery. Boston.
Journal of Clinical Endocrinology. Springfield, Ill.
Journal of Clinical Investigation. Boston.
Journal of Endocrinology. London.
Journal of Experimental Medicine. New York.
Journal of the Florida Medical Association. Jacksonville.
Journal of Hygiene. London.
Journal of Immunology. Baltimore.
Journal of the Indiana State Medical Association. Indianapolis.
Journal of Industrial Hygiene and Toxicology. Baltimore.
Journal of Infectious Diseases. Chicago.
Journal of International College of Surgeons. Chicago.
Journal of Investigative Dermatology. Baltimore.
Journal of the Iowa State Medical Society. Des Moines.
Journal of the Kansas Medical Society. Topeka.
Journal of Laboratory and Clinical Medicine. St. Louis.
Journal of Laryngology and Otology. London.
Journal of the Maine Medical Association. Portland.
Journal of the Medical Association of the State of Alabama. Montgomery.
Journal of the Medical Association of Georgia. Atlanta.
Journal of the Medical Society of New Jersey. Trenton.
Journal de médecine de Lyon. Lyon.
Journal of Mental Science. London.
Journal of the Michigan State Medical Society. Lansing.
Journal of the Missouri State Medical Association. St. Louis.
Journal of the Mount Sinai Hospital. New York.
Journal of National Cancer Institute. Washington, D. C.
Journal National Malaria Society, Columbia, S. C.
Journal of Nervous and Mental Disease. New York.
Journal of Neurology, Neurosurgery and Psychiatry. London.
Journal of Neuropathology and Experimental Neurology. Baltimore.
Journal of Neurophysiology. Springfield, Ill.
Journal of Neurosurgery. Springfield, Ill.
Journal of Nutrition. Philadelphia.
Journal of Obstetrics and Gynaecology of the British Empire. Manchester.
Journal of the Oklahoma State Medical Association. Oklahoma City.
Journal of Pathology and Bacteriology. Edinburgh.
Journal of Pediatrics. St. Louis.
Journal of Pharmacology and Experimental Therapeutics. Baltimore.
Journal of the Philippine Medical Association. Manila.
Journal of the Royal Army Medical Corps. London.
Journal of the Royal Institute of Public Health and Hygiene. London.
Journal of the South Carolina Medical Association. Florence.
Journal of the Tennessee State Medical Association. Nashville.
Journal of Thoracic Surgery. St. Louis.
Journal of Tropical Medicine and Hygiene. London.
Journal of Urology. Baltimore.
Journal d'urologie médicale et chirurgicale. Paris.
Journal of Venereal Disease Information. Washington, D. C.
Journal-Lancet. Minneapolis.
Kentucky Medical Journal. Bowling Green.
Klinische Monatsblätter für Augenheilkunde. Stuttgart.
Klinische Wochenschrift. Heidelberg.
Lancet. London.
Laval médical. Quebec.
Lyon chirurgical. Paris.
Maandschrift voor Kindergeneeskunde. Leyden.
Medical Annals of the District of Columbia. Washington.
Medical Journal of Australia. Sydney.
Medicina. Buenos Aires.
Medicina. Mexico, D. F.
Medicine. Baltimore.
Military Surgeon. Washington, D. C.
Minerva medica. Turin.
Minnesota Medicine. St. Paul.
Monatsschrift für Psychiatrie und Neurologie. Basel.
Nebraska State Medical Journal. Lincoln.
Nederlandsch Tijdschrift voor Geneeskunde. Amsterdam.
Nervenarzt. Heidelberg.

New England Journal of Medicine. Boston.
New Orleans Medical and Surgical Journal. New Orleans.
New York State Journal of Medicine. New York.
New Zealand Medical Journal. Wellington.
Nordisk medicin. Gothenburg.
North Carolina Medical Journal. Winston-Salem.
Northwest Medicine. Seattle.
*Occupational Medicine. A. M. A., Chicago.
Ohio State Medical Journal. Columbus.
Paris médical. Paris.
Pennsylvania Medical Journal. Harrisburg.
Philippine Journal of Surgery. Manila.
Physiological Reviews. Baltimore.
Plastic & Reconstructive Surgery. Baltimore.
Policlinico. Rome.
Practitioner. London.
Praxis. Bern.
Prensa médica argentina. Buenos Aires.
Presse médicale. Paris.
Proceedings of Royal Society of Medicine. London.
Proceedings of the Society for Experimental Biology and Medicine. Utica, N. Y.
Proceedings of the Staff Meetings of the Mayo Clinic. Rochester, Minn.
Progrès médical. Paris.
Psychiatric Quarterly. Utica, N. Y.
Psychiatry. Washington, D. C.
Psychoanalytic Quarterly. Albany, N. Y.
Psychosomatic Medicine. Baltimore.
Public Health Reports. Washington, D. C.
Puerto Rico Journal of Public Health and Tropical Medicine. San Juan.
Quarterly Journal of Medicine. Oxford.
Quarterly Journal of Studies on Alcohol. New Haven, Conn.
Radiology. Syracuse, N. Y.
Review of Gastroenterology. New York.
Revista chilena de pediatría. Santiago.
Revista médica brasileira. Rio de Janeiro.
Revista médica de Chile. Santiago.
Revue médicale de Liège.
Rhode Island Medical Journal. Providence.
Riforma medica. Naples.
Rocky Mountain Medical Journal. Denver.
Sang. Paris.
Schweizerische medizinische Wochenschrift. Basel.
Semaine des hôpitaux de Paris. Paris.
South Dakota Journal of Medicine. Sioux Falls.
Southern Medical Journal. Birmingham, Ala.
Southern Surgeon. Atlanta, Ga.
Strasbourg Médical. Strasbourg.
Surgery, Gynecology and Obstetrics. Chicago.
Surgery. St. Louis.
Texas State Journal of Medicine. Fort Worth.
Transactions of the Royal Society of Tropical Medicine and Hygiene London.
Tubercle. London.
United States Naval Medical Bulletin. Washington, D. C.
Virginia Medical Monthly. Richmond.
Western Journal of Surgery, Obstetrics and Gynecology. Portland, Ore.
West Virginia Medical Journal. Charleston.
Wiener klinische Wochenschrift. Vienna.
Wiener medizinische Wochenschrift. Vienna.
Wisconsin Medical Journal. Madison.
Yale Journal of Biology and Medicine. New Haven.

SUBJECT INDEX

This is an index to all the reading matter in THE JOURNAL. In the Current Medical Literature Department only the articles which have been abstracted are indexed.

The letters used to explain in which department the matter indexed appears are as follows: "BI," Bureau of Investigation; "E," Editorial; "C," Correspondence; "OS," Organization Section; "ab," abstracts; the star (*) indicates an original article in THE JOURNAL.

This is a subject index and one should, therefore, look for the subject word, with the following exceptions: "Book Notices," "Deaths," "Medicolegal Abstracts" and "Societies" are indexed under these titles at the end of the letters "B," "D," "M," and "S." Matter pertaining to the Association is indexed under "American Medical Association." The name of the author, in brackets, follows the subject entry.

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A

A Specific Substance, N. N. R., (description) 1041; (Sharp & Dohme) 1041
A. C. S. (Bogomolets) in Hodgkin's disease, [Skapier] 812—ab
A. D. A. Forecast: See Journals
ADC Audiometer, Model 50, 1131
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Acad.—Academy
Am.—American
A.—Association
Coll.—College
Commn.—Commission
Comm.—Committee
Conf.—Conference
Cong.—Congress
Dist.—District
Div.—Division
Found.—Foundation
Hosp.—Hospital
Indust.—Industrial
Inst.—Institute
Internat.—International
M.—Medical
Med.—Medicine
Nat.—National
Pharm.—Pharmaceutical
Phys.—Physicians
Soc.—Society
Surg.—Surgery
Surgs.—Surgeons
S.—Surgical

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